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ORIGINAL COMMUNICATIONS.

Case of Resection of the Right Elbow Joint for the relief of Caries and Anchylosis of the Joint; cured, with considerable motion at the Elbow. By HENRY H. SMITH, M. D., Consulting Surgeon to the Philadelphia Hospital, Blockley.

Terence ———, aged 16 years, entered the Philadelphia Hospital, Feb. 23d, 1854, in consequence of caries of the right elbow and anchylosis of the joint, consequent on a fall.

The disorder having existed for 18 months, and the arm been allowed to become anchylosed in the straight position, he was sent as a pauper to the Alms House and thence to the Hospital. After being in the house about eight months, he was presented to me at the commencement of my term of service in October. At this time, he was pale, anæmic and enfeebled by long continued disease and suffering, and exhibited symptoms of hectic fever; the elbow-joint was very much swollen, and the skin inflamed and thickened round the bend of the elbow, several ulcerated spots and fistulous orifices existing both on the front and back of the arm. On introducing a probe into two or three of these orifices, the bones were readily felt in a carious condition; there was also perfect inability to move the hand in pronation or supination, the least attempt at bending the elbow or pronating the hand causing him severe pain. As his right arm was thus rendered useless, and there was every

prospect of his either dying of hectic fever or becoming a pauper for life, I decided on attempting to save the limb by resecting the diseased joint. Accordingly, on the 11th of Oct. 1854, after an appropriate preliminary treatment, I operated as follows, before the medical class in attendance on the practice of the house.

Operation. The boy being fully etherized by a mixture of chloroform 1 part, ether 3 parts by weight, was laid on his belly with his face inclined to the side of the table, and a stout, round pillow placed on the front of the elbow as a support to the portion to be operated on, as well as with the view of favoring the flexion of the fore-arm, after the section of the olecranon process.

The arm being thus steadied, an H incision was made over the joint on its posterior face; the flaps turned up, the ulna nerve dissected out of its trochlea, and held on the front side of the internal condyle, and the artery which accompanied it compressed at a point where it was wounded. Martin's* circular saw being then applied to the shaft of the ulna, the olecranon process was soon removed, and the whole joint being thus laid open and found to be diseased, both the condyles of the humerus, as well as the epitrochlea, were sawed off by the same saw. The head of the radius being also diseased, it was excised from the neck of the bone by means of large and strong bone-nippers. So little hemorrhage ensued on the operation that no ligatures were applied. The flaps were then loosely united by sutures, supported by a light bandage, and the boy placed in bed with the arm supported on a pillow in the semi-flexed position, the whole elbow being covered by cloths, wrung out of tepid water. At 8 o'clock, P. M., his pulse was 90, and, as he was suffering, 60 drops of laudanum were given to allay the pain.

Oct. 12*th.* Slept well, better than for many weeks; suffers but little. Ordered chicken-broth and anodyne pro re nata.

Oct. 14*th.* Removed dressing; suppuration commenced; ordered a light bandage to the part; omit water dressing; tinct. cinchonæ compos. fʒiv. per diem; chicken for dinner.

[* This saw may be found figured in Smith's Operative Surgery, second edition, plate 5, fig. 1, vol. 1.—Editor.]

Oct. 16*th.* Dressed arm and increased the flexion slightly.

Oct. 18*th.* Applied an obtuse angular splint to the front of the arm; ordered to sit up.

Oct. 20*th.* Has his clothing on.

Oct. 24*th.* Applied a splint nearly of a right angle.

After this date, the wound was dressed daily, the angle of the splint being gradually changed to a right angle, and then to one which semi-flexed the arm.

Dec. 5*th.* Terence is now able to do without the splint, and has considerable motion at the joint, the wound being healed.

Jan. 15*th.* Terence can now move his elbow, so that his hand will traverse an arc of 40 degrees, and can pronate and supinate the hand quite well.

Remarks. The advantages of the operation of resection in this case are so apparent as not to require much argument, the saving of a right arm in one dependant on his daily labor for his support, being sufficient evidence of its value as a means of treatment in similar cases.

As a class, few operations are more strikingly illustrative of the progress of conservative surgery than those of resections, yet the number of instances reported in the United States of its application to the upper extremity are by no means commensurate with the cases which might have thus escaped amputation. After a careful examination of a very considerable number of American medical periodicals I find only the following:—one by Dr. Thos. Harris, of Philadelphia, in 1836; one by Dr. Gurdon Buck, Jr., of New York, in 1841, another in 1843, and a third one in 1846; and one by Dr. J. Pancoast in 1842. These cases, with the present one, making only six instances in which this operation has been published. In every case no serious symptoms supervened on the operation, and the patient was relieved of the exhaustion and suffering attendant on the disease, besides obtaining a comparatively useful limb.

The entire head of the humerus was resected by Dr. Hunt, of Washington city, in 1818, and a large portion of the same bone (its head) was removed by Dr. Pinckney, of the Navy, in 1846. When we compare this limited number of operations with the numerous cases of diseased joints that have required it, we must admit that resections of the bones of the upper extremity have

not received the attention that the benefits conferred by the operation might naturally lead us to anticipate, and it is with a view of calling professional notice to this useful class of operations that the present case has now been reported.

On Dropsy after Scarlatina.

By O. C. GIBBS, M. D., of Perry, Lake county, Ohio.

Few diseases have more troublesome or a greater variety of sequelæ than scarlet fever.

Though the case may be a mild one, and the period of the fever and rash passed with safety, death may ensue from subsequent evils; or, if life be preserved, changes may be wrought in the delicate organism that may be seen and felt throughout the subsequent period of the patient's history.

When the rash declines, and the anxiety of friends is lessened, swelling, suppuration, abscess of the parotid and submaxillary glands may supervene, and the consequent irritation and purulent discharge may exhaust the weakened system beyond the reach of its feeble recuperative energies, and having outlived scarlet fever the patient may die of hectic. Coupled with or independent, as the case may be, of this glandular disease, may occur inflammation of the internal ear, with subsequent copious purulent discharge, resulting in hardness of hearing or deafness, which will hopelessly continue for the remainder of life.

The ear is not the only organ of sense liable to injury from these troublesome sequelæ. Chronic opthalmia may come on, continuing, perhaps, for months and years, with permanent impairment of the delicate organ of vision; or inflammation of the pituitary membrane may take place, with purulent discharge from the nostrils, resulting, perhaps, in ozœna or an unpleasant and obstinate derangement of this important organ of sense.

During the decline of scarlet fever, inflammation of the mucous membranes occasionally occurs, giving rise to bronchial, gastric and enteric diseases, which may continue for an indefinite period of time or early result in death. The serous membranes, also, are by no means exempt; pleuritis, peritonitis, and worse than all, meningitis, simple or tubercular, with their concomitant dangers to life, may result from the progress or decline of this affection.

The catalogue of sequences is by no means complete; but the object of this paper was not to enumerate them or their dangers, but to give expression to the best received opinions upon the pathology and treatment of the more common and serious of them all, I mean dropsy, in those forms which succeed to scarlatina.

Dropsy, following scarlet fever, presents itself in two distinct etiological conditions. The first, most common and dangerous, has its origin in a congested or inflamed condition of the kidney. The second, less common and more amenable to treatment, owes its existence to anæmia.

1st. *Hydrops nephriticus*, or renal dropsy, may come on at different intervals after the commencement of the disease, of which it is a sequela; but, more commonly, within two weeks after the appearance of the eruption. It is usually preceded by two or three days of interrupted convalescence, indicated by impaired appetite, increased thirst, constipated bowels, scanty urine, dry and hot skin, and accelerated pulse. These signs of constitutional disturbance are accompanied by an arrest of the process of desquamation. After two or three days continuance, œdema of the face comes on, which usually awakens but little anxiety until, sooner or later, this puffiness extends to the hands and feet. These symptoms are accompanied by scanty and albuminous urine. The albuminous character, it is said, is not always present, yet upon this point there seem to be different opinions entertained. In mild cases, after a few days continuance of the above abnormal symptoms, the function of the kidneys is restored, the anasarca gradually disappears, convalescence is re-established and progresses without further interruption. In severe cases, in addition to the symptoms given above, pain and tenderness are felt in the lumbar region; the urine is very scanty, highly albuminous and frequently bloody; the œdema extends throughout the cellular tissue of the skin and lungs; the features become distorted and the limbs greatly swollen by the anasarca. But at this stage of the difficulty, the pectoral symptoms are usually the most distressing and dangerous. Cough, difficult and hurried respiration, accompanied with copious frothy expectoration, continue to harass the patient until death takes place, in consequence of the œdema of the lungs, or until these distressing symptoms

pass away with the general anasarcous condition. The greater the œdema, the less the effusion into the serous cavities, and *vice versa.* Ascites, perhaps, is an exception to this. The relative frequency of dropsy of the serous membranes, is in the order named: Ascites, Hydrothorax, Hydrocardium and Hydrocephalus. These affections may occur either simultaneously or successively. I once saw a patient affected with œdema, on the subsidence of which, ascites was developed, subsequently hydrothorax, and finally hydrocephalus, of which the patient died. When effusion takes place into any of the serous cavities, the symptoms peculiar to each of these several dropsies are superadded to those given above.

In these cases, the energy of the system seems to be overwhelmed with the intensity of the diseased action, the pulse is very much accelerated and enfeebled, respiration is labored, the urine is not only very scanty but brown, or reddish brown, from sanguineous intermixture, and unless the kidneys are speedily restored to their normal function, with a corresponding abatement of the dropsical symptoms, death may take place from an increase of the pectoral disease; from the effects of effusion into some of the serous cavities; or from coma resulting from the poisonous properties of the urea retained in the circulation.

(*a.*) Of the *nature and cause* of that form of renal dropsy which succeeds scarlet fever, there has been expressed a diversity of opinion. It is highly probable that the congestion of the kidney, and the exfoliation of the epethelial cells, are as much the specific effect of scarlatina poison, as is the eruption upon the skin and the cuticular exfoliation.

It is said dropsy is more frequent after a mild than a severe case of scarlet fever; or, rather, is more likely to succeed those cases accompanied with but an insignificant eruption. The reason of this is apparent, if we admit the specific nature of the renal affection; for the more perfect the elimination of the scarlatina poison by the skin, the less the tax upon the kidneys. This view derives support, when compared with the reciprocal relation existing between the catarrhal and eruptive symptoms in rubeola. Every one knows that the catarrhal symptoms in measles, are as much a specific effect of the rubeolous poison, as is the eruption itself; and, if the rash is tardily or but imperfectly developed,

the catarrhal symptoms are fearfully increased, and bronchitis or pneumonia is usually induced.

Most writers agree in considering cold the most common and prolific cause of effusion in scarlatina. But if the specific nature of the renal affection be admitted, then the albuminous character of the urine is not produced by cold.

Effusion will probably not take place, so long as the amount of the retained urea is within the bounds of the accommodating power of the system. If this be so, then anything that will diminish the activity of the organism or increase the amount of the retained urea beyond this accommodating power, becomes the immediate cause of the dropsical symptoms.

(*b.*) The *pathology* of this affection, it is not here proposed minutely to consider. From what has been said, it is apparent that we must look to the kidneys, would we find those pathological lesions which give rise to that form of dropsical disease now under consideration. An examination after death reveals the kidneys enlarged, generally darker and more congested than natural. Their surfaces usually present a pale and mottled appearance, which contrasts, in a marked degree, with the internal tubular parts of the cortical structure. The pelvis and infundibula are involved, generally, in the increased vascularity, but by no means uniformly so. Diligent microscopical researches have shown that the cortical portions are the first to give evidence of the morbid process, and more particularly, the urinary tubules. "This congestion," observes Dr. Behrend, "induces exudation and hemorrhage from rupture of the capillaries, both effusions mingling with the urine, which becomes of a dark chocolate color. By means of the exudation, the small vessels and tubuli of the cortical substance are in part obliterated, and in part compressed, a granular appearance resulting under the microscope; the capillaries are observed in part empty, and in part filled with exudation globules, without any red blood; and hence, assuming a whitish-straw color. A yet stronger pressure of blood and urine produces, within the tubuli, a separation and regeneration of epithelium, analogous to the eruption and desquamation of the surface; and, finally, albumen is separated with the urine."

This impaired activity of the cortical substance, this morbid condition of the urinary tubules and epithelial cells, prevent the

proper elimination of the urea, and the retention of this substance, in connection with the scarlatina poison, acts efficiently in the production of the troublesome sequelæ under consideration.

(*c.*) The *mode* in which dropsy is induced from the above described renal affection, is, perhaps, the following: The retained urea acts as a poison, deteriorating the blood, from which retained excretion the system attempts to relieve itself, perhaps by an increase of the other secretions. Succeeding in this, no dropsy is produced. But if the amount of the retained urea is too great, or its deficient elimination too long continued, for the successful resistance of the enfeebled powers of the system, excitement of various parts and sundry effusions ensue.

Besides this excrementitious retention, there is a deficiency of albumen in the blood, which loss, by thinning that fluid, predisposes to and facilitates dropsical effusions. It is to this impairment of the circulating fluid, from the causes mentioned, and the disposition of the scarlatinous poison to become eliminated by the skin, that dropsical effusions are probably due; the effusions into the serous membranes being attributable to the former cause alone.

2d. *Hydrops anæmicus*, or dropsy produced as a consequence of anæmia, occasionally succeeds scarlet fever. The renal affection above described—the deficiency of albumen, and the retained urea in the blood—may so deteriorate that fluid, by diminishing the red globules and increasing the watery constituents, as to resemble anæmia. But by anæmic dropsy is meant that form of effusion, resulting from a deficiency in quantity and deterioration in the quality of the blood, independent of any renal affection or marked morbid condition of the urine. The diminished and impoverished condition of the blood in anæmia disturbs circulation, promotes congestion or local determination of blood, and facilitates watery effusion. The heart, failing to receive its normal amount of healthy stimulus, performs its action less perfectly than in health. This impaired circulation, in connection with a lax condition of the veins, predisposes to congestion and congestion to effusion. Not only so, but in debility, the relaxed condition of the capillary blood vessels allows the liquid portion of the blood to pass through their walls with less than ordinary resistance.

In the *treatment* of renal dropsy, resulting as a sequela of scarlatina, the indications of treatment are, 1st, to relieve the congested condition of the kidneys; 2nd, to restore the normal functions of these organs; and 3d, to support the system against the prostrating effects of deteriorated blood.

1st. To relieve the congested condition of the kidneys, blood-letting, purgatives and diaphoretics are the instrumentalities most to be relied upon. In the early stage, when the symptoms of congestion are well marked, when the urine is acid, blood-colored and albuminous, blood may be taken from the arm, but not with that freedom which is justifiable in most other congestive diseases. The reason of this is obvious, when it is remembered that the patients are mostly young children, and that the retained urea, in connection with the scarlatinous poison, rapidly deteriorates the blood and induces anæmia. Venesection is a remedy of such power in such cases, that without the exercise of much wisdom as to the case, to time and quantity of the abstraction, more of harm than good may result. In some cases, cupping to the small of the back or leeches applied in the region of the kidneys, may be a safer means of depletion. But in most cases, probably the loss of blood can be wholly dispensed with, trusting to the anti-phlogistic and revulsive effect of cathartics and diaphoretics. Of cathartics, the saline are to be preferred, and may be administered daily or less frequently, as the circumstances of the case may require. Of diaphoretics, antimony should be preferred in cases of great vascular excitement, accompanied with considerable head-ache, and a very hot and dry skin. The neutral mixture and the solution of the acetate of ammonia, are appropriate remedies in such cases. The Dover's powder may be given in such cases as are unaccompanied with headache or a disposition to stupor. These may be given singly, or variously combined to meet the peculiarities of the age, vigor of constitution, period of disease or intensity of morbid action. Whatever be the choice or combination of diaphoretics, the medicine should be given every two or three hours, so as to maintain an uninterrupted impression. The daily administration of the warm bath, is a powerful auxiliary to the above mentioned remedies.

2d. To restoring the normal function of the kidneys, by the administration of diuretics, high authority stands opposed; or,

at least, there is an honest diversity of opinion among medical writers, in regard to the propriety of such a procedure. But it is presumable that objection is mostly made upon theoretical grounds. Many suppose that diuretics, by stimulating the kidneys, increase their already congested condition, and thus defeat the very object for which they are administered. In measles, small pox, or scarlet fever, we do not hesitate to administer diaphoretics, notwithstanding the congested condition of the skin; neither do we fear any increase in the intensity of disease by such administrations. But, on the contrary, it is upon such medicines that we place our greatest reliance.

Admitting the specific nature of the congestion and exfoliation of the epithelium, lining the tubuli of the cortical structure of the renal organs, why should diuretics be more inappropriate than diaphoretics in congestion and exfoliation, upon the surface of the body in uncomplicated cases of scarlatina? Again: when we consider that the greatest danger in these cases, arises from the retained urinary excretions, and that improvement is simultaneous with the return of the normal functions of the kidneys, the importance of the judicious administration of diuretics becomes an almost irresistible conviction. Of diuretics, cream of tartar and digitalis are probably superior to all others, excepting in cases of extreme debility. These may be given singly or in combination, with decided advantage, and without risk of increasing renal congestion, if the dose and frequency of repetition be proportioned to the age of the patient and the varying symptoms of individual cases. Many careful and judicious practitioners, would probably advise diuretics, only after several days' continuance of the antiphlogistic remedies, mentioned when speaking of the accomplishment of the first indication. But, probably, in most cases, after general or local bleeding, as the case may require, or after the administration of a saline cathartic, should loss of blood be considered injudicious, the diuretics above mentioned may be commenced with at first, and continued in appropriate doses every three or four hours, in connection with an occasional cathartic.

3d. When the urine is of a whitish-yellow color, from its large proportion of albumen, and ceases to exhibit an acid reaction, antiphlogistics must be dispensed with, and the rapid deterioration of the blood guarded against by the judicious administration of tonics. Diuretics may still be persevered in, and there is

nothing inconsistent in giving tonics in connection with cream of tartar and digitalis. But, if the anæmia is very considerable, the more stimulating diuretics may be preferred. The spirits of nitre is particularly appropriate in cases accompanied with nervous derangement. Of the tonics, perhaps the muriated tincture of iron is equal, if not superior, in these cases, to any other known.

The treatment of anæmic dropsy consists, essentially, in the administration of tonics and stimulating diuretics. A judicious administration of the remedies mentioned, both in reference to the age of the patient and the peculiarities of each case, will, in a great majority of cases, eventuate in recovery.

Removal of a portion of the Left Lung.

By T. B. Hale, M.D.

Editor Medical Examiner:

Dear Doctor,—The following case has been communicated to me by my friend, Dr. Hale, of Minersville, Pa. Believing it to be unique, I am desirous of giving it to the profession through the pages of your valuable journal. The removed portion of lung is now in my possession. It is pyriform in shape, somewhat flattened, and measures about 6 inches long, $2\frac{1}{2}$ inches in diameter at the largest end, and 1 inch in diameter where it was cut across. It appears quite destitute of blood, except near the small end, where the capillaries appear quite full. The specimen is somewhat contracted in size from the action of the alcohol in which it is preserved.

Very respectfully,

J. H. Wythes, M. D.

Port Carbon, Dec. 21, 1854.

C. D., an Irishman, aged 25 years, rather small in stature, but stoutly built, with a well developed chest, being engaged in a fight while intoxicated, received a stab in the left side, parallel with the ribs. The wound was about $1\frac{1}{4}$ inch long, and appeared to have been made with a sharp, clean-cutting instrument. About fourteen hours after the injury he was visited by Dr. Hale, who found, upon examination, a portion of the left lung protruding from the thorax. He was sitting up in bed, having the protruded portion supported by a broad bandage. He complained of no

pain, and had suffered but little from loss of blood. There was no cough or difficulty of breathing, but on taking a full inspiration the protruded lung became filled with air, and drops of venous blood oozed from its substance. The protrusion was so tightly strangulated at the wound in the thorax that after an hour and a half spent in unsuccessful efforts to restore it, Dr. Hale made a cautious attempt to enlarge the wound in the interosseous space. Fearing, however, the effect of a large opening into the cavity of the pleura, he was induced to desist, and consider the propriety of excision. As the protrusion looked extremely unhealthy, from the length of time since the accident and the efforts made to reduce it, making gangrene not an improbable result, excision seemed to be the only resource. Dr. H. contemplated applying a ligature at the base of the protruded lung, but on making two experimental incisions into its substance, and no blood flowing, this was not judged necessary, but the mass was at once excised, and the remaining portion pushed back through the wound in the interosseous space, the orifice of which was then closed with two stitches and strips of adhesive plaster. The patient was then directed to lie quietly on his back, and a mixture of two parts syr. prun. virgin., and one part syr. opii prescribed; a tablespoonful to be given every two hours for the purpose of allaying irritation in the bronchial tubes. On the second day, Dr. Hale found him in a favorable condition, and on the sixth day he walked five miles to visit his physician, suffering in no manner from the loss of the portion of lung. For the last three months he has labored constantly in the coal mines, without inconvenience.

The speedy recovery of the patient appears to have been due to adhesive inflammation between the adjacent walls of the pleura, through the wound in which the protruded lung was strangulated. In all probability the pulmonary and costal pleura and the substance of the lung are all connected in the same cicatrix.

Report of a Case of Triplets.

By R. A. F. Penrose, M.D.

The case reported below, is an abstract made from the notes of Mr. C. H. Hall, a member of my practical obstetrical class, and occurred in one of the patients assigned to his charge. It is given merely to increase the statistics on the subject, and because the mechanism of labor was carefully watched by Mr. Hall.

"I was called, Dec. 28th, 1854, to Mrs. W——, supposed to be in labor, this being her second confinement. Found that she had been suffering, more or less, with pains since the midnight previous. My attention was called at once to what she termed "a great swelling in her side," and on examining her abdomen, an unusual prominence was found extending from the hypogastric into the right lumbar region, apparently produced by the position of the child in utero. The os uteri was found slightly dilated, soft and moist. From this time, 11 o'clock, A. M., the labor progressed very slowly. By four o'clock, the head had somewhat descended, and the occiput was found in front and to the left, and by six, the child was born. The cord was very short. On applying the hand upon the abdomen, to ensure contraction of the uterus, it was found to be of very unusual size, and suspecting another child, I made an examination, and found a head presenting *exactly in the same position* as the first. The pains being very feeble, the delivery of the head of the second child was very tedious, the head remaining almost three quarters of an hour half protruded through the vulva. Some ergot being administered, the uterine contractions became more powerful, and the head was expelled. And now a hard, round tumor was felt distending the perineum, and as the shoulders of the second child were born, the head of a third slipped out, which had descended, firmly pressed against the anterior and upper portion of the thorax of the second child, and having the same position as the heads of the two preceding children, viz.: the occiput to the front. The two children thus born simultaneously, exhibiting no signs of life, every effort made to resuscitate them proving unavailing. Particular attention was paid

to the uterus, in order to secure proper contraction, and more ergot was given to promote the same object, the patient being very much exhausted. The placenta was delivered, and on examination, it was found that there was a common placental mass for the three children. This mass was more than double the size of an ordinary placenta, was of oblong shape, having three cords, and the remains of three bags of membranes. Upon injecting fluid into the different cords, it was found that the fluid injected into the vessels of one cord could not be made to pass out by the vessels of either of the others, but returned by the vessels of the same cord.

The children were all small. The mother did well.

Mortality of Philadelphia for October, November and December, 1854; *collated from the Health Office Record; with a summary of Deaths for the entire year.* By WILSON JEWELL, M.D.

It will be noticed, by a reference to former tables, that the rate of mortality for the last three months, falls considerably below that of either of the three preceding quarters of the year.

The total of deaths for the 4th quarter, terminating December 30th, 1854, is 2,204; which number, estimating the population at 450,000, gives about 20.41 deaths in every thousand, or an average of twenty-four deaths daily—nearly one half or fifty per cent. less than for the 3d quarter of the year.

By omitting the deaths charged to Still-born, External Causes, Old Age and Unknown, amounting in all to 333, the mortality from accredited diseases alone, is only 1871, thus reducing the average of deaths from diseases to about 20 per day.

The destruction of infant life in this quarter, as in former statistics gathered from the Health Office, continues to maintain its high rate, and is of sufficient import to claim the earnest consideration and persevering investigations of every physician and political economist, in order to point out the true cause, and if removable, suggest the remedy.

Dr. Friedlander, a modern French writer, asserts that one-fourth of all children born alive, perish within the first year. Having no data of births for reference during the past three

years in Philadelphia, we can only add that, in former years, the proportion ranged between one-fourth and one-fifth of all births, including, however, the still-born. Even this great sacrifice of life on its threshold, is full of interest, and ought to command the most careful study and application from the vital and political statistician.

The number of deaths recorded in the present quarter, under one year, exclusive of Still-born, amounts to 437, about one-fifth, or nearly 20 per cent. of the whole.

If a similar calculation be made of deaths under five, amounting to 973, it will exhibit a far higher rate of mortality, reaching almost to one half the whole number of deaths for the quarter.

The highest rate of mortality for any one distinct period of of life occurred under one year, viz., 437. For the next five periods, that is between 1 and 20 years, the deaths gradually diminished as the years increased. At that decade of life, between 20 and 30, the second highest rate of deaths took place, when again there was a regular declension up to the last period, 100 to 110. This arrangement is so uniform in death statistics generally, as would almost induce one to look upon it as an established law of nature.

The excess of deaths in the male sex for the quarter, has been equal to 10 per cent. over the females.

The excess of male still born children has also been 10 per cent. over those of females.

Table No. 2, *Class* 1*st.*—"Endemic or Epidemic diseases," amount only to 445, or 20.19 per cent. of the whole. Compared with the returns for July, August and September, it shows a reduction of 1517! This wide difference is occasioned by the falling off in the deaths from Cholera Asphyxia, Morbus and Infantum, and Dysentery and Diarrhœa.

Of Scarlet Fever there has been only six deaths in three months. In 1853, like months, there were 59 deaths.

Class 2*d.*—"Uncertain Seat;" of these there were 281 deaths. More than two-thirds were from Debility, Dropsy and Marasmus.

Nearly one-half the deaths under this head were within the first year of life.

Class 3d.—Of "Nervous diseases" there have been recorded 377 deaths. Of these, 129 were from convulsions, 76 of which number were under one year of age. Two hundred and twent-one, or 58·62 per cent. of all the deaths in this class were under five years of life.

Class 4th.—The diseases of the "Organs of Respiration" furnish 561 of the deaths for the quarter, a greater per centage than those of any other class. Of these, 349 were from Consumption of the Lungs, which in proportion to the number of deaths is as 25·83 per cent. The highest mortality from Consumption was between 20 and 30 years. From Inflammation of the Lungs there were 103 deaths.

Of the remaining classes contained in this table there is nothing remarkable. Where they present the usual variety of deaths, the numbers are unusually few.

Two hundred and twenty-two of the deaths recorded were from the Alms-house; 139 were blacks, and 12 from the country.

TABLE NO. I.

Deaths for the fourth quarter of 1854 *classified.*

				Male.			Female.			
	Oct.	Nov.	Dec.	O.	N.	D.	O.	N.	D.	Total.
1 *Endemic & Contagious diseases* Zymotic or Epidemic	187	166	92	106	95	57	81	71	35	445
2 *Uncertain or general seat,* Sporadic diseases	101	109	71	48	59	41	53	50	30	281
3 Nervous system	124	139	114	73	83	68	51	56	46	377
4 Organs of Respiration	176	191	198	74	91	107	102	100	91	565
5 " Circulation	14	19	17	7	10	10	7	9	7	50
6 Digestive organs	41	55	30	20	28	17	21	27	13	126
7 Urinary "	2		2	2		2				4
8 Organs of Generation	1	5	4				1	5	4	10
9 " Locomotion	4	4	4	3	3	3	1	1	1	12
10 Integumentary system		1						1		1
11 Old age	14	14	16	6	6	7	8	8	9	44
12 External causes	32	35	25	28	22	18	4	13	7	92
Still Born	41	46	41	25	28	22	16	18	19	128
Unknown	17	24	28	11	15	19	6	9	9	69
	754	808	642	403	440	371	351	368	271	2204

TABLE NO. 2.

1. *Endemic and Contagious Diseases—Zymotic or Epidemic.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Cholera Asphyxia	34	22	1		4	2	1	2	10	14	6	10	4	2				56
" infantum	17	13	14	13	3													30
" morbus	8	10				2	1	1	3	2	2	1	3	2	1			18
Croup	50	43	9	19	48	17												93
Diarrhœa	15	10	5	2	2				4	1	3	2	2	4				25
Dysentery	33	26	2	9	6			2	7	10	5	12	5	1				59
Erysipelas	8	2	2		1	1		1	1	3	1							10
Fever,	2	1	1								1	1						3
" Bilious	5				2					1		2						5
" Congestive		1												1				1
" Intermit.	2	1		1									1	1				3
" Malignant	1								1									1
" Remittent	9	6	1	1	1	1			2	3	1	3	1	1				15
" Scarlet	4	2	2	1	2	1												6
" Typhoid	37	21			3	5		8	11	14	9	4	1	3				58
" Typhus	8	8							8	4	1	1	2					16
Hooping Cough	12	16	15	3	8	2												28
Influenza	1												1					1
Measles	2	1	1	1	1													3
Small Pox	9	3	2		5		1		3	1								12
Syphilis	1	1	1									1						2
	258	187	56	50	86	31	3	14	50	53	29	37	20	15	1			445

2. *Uncertain or General Seat—Sporadic Diseases.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Abscess	4	4	2	1					2			1	2					8
" Glands	1			1														1
" Neck	1												1					1
Cancer		2								1			1					2
" Breast		2								1		1						2
Cyanosis	7	7	13						1									14
Debility	49	37	41	5	2	1	1	1	1	6	6	7	6	5	2	2		86
Dropsy	13	18		1	1	1		1	6	3	4	8	5	1				31
Gangrene	1		1															1
Hemorrhage	3	1	1					1		1			1					4
Inanition	15	6	18	1					1				1					21
Inflammation		1	1															1
" parotid glands	1									1								1
" throat	1		1															1
Malformation	4	1	5															5
Marasmus	39	40	43	20	9	1	1		1	1			2		1			79
Mortification		3			1								1		1			3
" Leg	1												1					1
Schirrhus		1								1								1
Scrofula	1	6	4		1		2											7
Sore Mouth	1			1														1
" Throat		1	1															1
Tabes Mesenterica	4	2	4									1	1					6
Ulceration of Face		1			1													1
" Throat	2					1							1					2
	148	133	135	30	15	4	4	3	12	15	11	18	22	6	4	2		281

3. *Nervous Diseases.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Abscess of Brain		1				1												1
Apoplexy	15	17	2						3	4	8	9	2	3	1			32
Concussion of Brain	3						2				1							3
Congestion "	24	17	5	10	7	1	1	2	6	2	1	3		3				41
Convulsions	71	58	76	14	24	4	1		3	2	2	1		2				129
" Puerperal		4							2	1	1							4
Disease of Brain	11	3	3	2	2		3		1	1	1			1				14
Dropsy "	27	16	17	9	10	4	2			1								43
Effusion	5	4	1	2	4		1				1							9
Epilepsy		1					1											1
Inflammation of Brain	35	15	12	8	9	5	3	2	4	2		2	3					50
Insanity		1							1									1
Mania	1	3							1		2	1						4
" a Potu	12	2								3	8	3						14
Neuralgia	2												2					2
Palsy	10	9							2	2	2	3	1	6	3			19
Softening of Brain	4				1						1		1	1				4
Trismus	1		1															1
Tetanus	3	2	1	1			1	1			1							5
	224	153	118	46	57	15	15	5	23	18	29	22	9	16	4			377

4. *Organs of Respiration.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Asthma	3	4	2	1	1								2	1				7
Congestion of Lungs	9	6	9	1	2					1		1		1				15
Consumption "	164	185	4	4	5	1	2	24	120	84	49	30	16	6	3	1		349
Disease of Chest	1		1															1
" Lungs	5	5	2	1	1				1	1	2	1	1					10
Dropsy of Chest	3	2							1	1		1	1		1			5
Gangrene of Lungs		1								1								1
Hectic Fever		1											1					1
Hemorrhage of Lungs	3	3					1	2	1		1	1						6
Inflamm'n of Bronchiæ	26	24	23	7	3		1	1	3	5		1	1	4	2			50
" Chest	1	1	1		1													2
" Larynx	3	1	2	1										1				4
" Lungs	49	54	21	16	11	3	3	1	9	13	7	7	6	4	2			103
" Pleura	2	2							1	2		1						4
" Tonsils	1				1													1
Tuberculosis	2	4			1			2	2	1								6
	272	293	65	31	26	4	7	29	138	109	59	43	28	17	8	1		565

5. *Organs of Circulation.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Anæmia	2		1							1								2
Disease of Heart	19	16	2				1	1	5	3	10	6	2	5				35
Dropsy "	1	1											1	1				2
Enlargem't "	2	1								1	1	1						3
Gout "		1													1			1
Inflammat'n "		1											1					1
" Veins	2	1	1						2									3
Malformation of Heart	1		1															1
Ossification "		1							1									1
" Arteries		1													1			1
	27	23	5				1	1	8	5	11	7	4	6	2			50

6. *Digestive Organs.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Abscess of Liver	2									1		1						2
" Stomach	1							1										1
Cancer of "	3	1										2	1	1				4
" Liver	1	1											1	1				2
Cancrum Oris	2	3			3	2												5
Cirrhosis of Liver	1	1										2						2
Congestion "	2		2															2
Constipation	1	1							1				1					2
Consumption of Bowels	1				1													1
Disease of Bowels	1	1	1									1						2
" Liver	5	5	2						1	1	1		3	1	1			10
" Stomach		2							1	1								2
Dropsy, Abdominal	9	8					1	1	1	4	4	3	3					17
Dyspepsia	1										1							1
Hernia, Strangulated	1	1					1					1						2
Inflammation of Liver	4	3							1		2	3		1				7
" Peritoneum	6	5				1	1	1	3	2	1	1		1				11
" Stom. & Bowels	14	16	9	2	1	2	1		2	2	2	2	1	6				30
Jaundice	3	6	3						2	1		1	1	1				9
Obstruction of Bowels	2	1						1	1				1					3
Schirrus Pyloris		1											1					1
Teething	2	2	2	2														4
Ulceration of Intestines	1	3				2		1				1						4
" Rectum	1											1						1
Worms	1			1														1
	65	61	19	5	5	7	4	5	13	12	11	19	13	12	1			126

7. *Urinary Organs.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Abscess of Kidneys,	1									1								1
Disease "	1										1							1
Inflammation "	1					1												1
" Urinary Organs	1												1					1
	4					1				1	1		1					4

8. *Organs of Generation.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Cancer of Uterus		4							1	1	2							4
Child-bed,		2							1	1								2
Inflammation of Uterus		1								1								1
Puerperal Fever		1							1									1
Rupture of Uterus		1								1								1
Ulceration "		1											1					1
		10							3	4	2		1					10

9. *Organs of Locomotion.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Caries of Spine	1						1											1
Disease "	3	1					1		1		1			1				4
" of Hip Joint	2	1					1	2										3
Rheumatism	2	1							1			2						3
White Swelling	1								1									1
	9	3					3	2	3		1	2		1				12

10. *Integumentary System.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Purpura Hemorrhagica		1	1															1

11. *Old Age.*

Old Age	19	25											6	15	13	9	1	44

12. *External Causes.*

	Male.	Female.	Under 1 yr.	1 to 2.	2 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 100.	100 to 110.	Total.
Asphyxia	1	2	3															3
Burns	8	3	1	1	4	1			2		1	1						11
Casualties	22	3	2		1		4	1	7	7	3							25
Drowned	17	2			2			1	3	5	3	1	3	1				19
Fracture of Ankle	1								1									1
" Leg	1									1								1
" Skull	1									1								1
Intemperance	8	8							3	2	7	1	1	2				16
Poison	2	1						1		1	1							3
Suffocation		4	3					1										4
Suicide	6							1		1	2	1		1				6
Violence	1	1	2															2
	68	24	11	1	7	1	4	5	16	18	17	4	4	4				92
Still Born	75	53	128															128
Unknown	45	24	27	1	6		1	1	6	4	11	5	5	1	1			69

TABLE NO. 3.

Deaths for the Fourth Quarter of 1854, *at fifteen distinct periods of life.*

Under 1 year,	437
1 to 2	164
2 to 5	202
5 to 10	63
10 to 15	42
15 to 20	65
20 to 30	272
30 to 40	239
40 to 50	182
50 to 60	157
60 to 70	113
70 to 80	93
80 to 90	34
90 to 100	12
100 to 110	1
	2076
Still Born	128
Total,	2204

Included within the above table, were 222 from the Blockley Alms House; 139 Blacks, and 12 from the country, as follows:

	October.	November.	December.	Total.
Almshouse,	82	77	63	222
Blacks,	53	42	44	139
Country,	4	4	4	12
Total,				373

Annual Mortality of Philadelphia, 1854.

By comparing the mortality of 1854 with that of 1853, the most notable difference is the increase of the former over the latter. This, however, to some extent, at least, may be accounted for, aside from an epidemic influence, by the additional amount of territory with its sub-urban population engrafted on the city proper and its incorporated districts, from which alone, before the act of consolidation, the mortuary tables were calculated. Now, the returns from a number of burial grounds scattered over the county, are added to the former list, and instead of calculating the death rates from the returns of a population estimated at 415,000, we now embrace the population of the entire county, and from the most reliable evidence to be obtained, venture to set it down at 450,000.

Starting with this proposition, the relative numerical difference of mortality between these two years may be explained away, especially when taken together, with the redundancy of deaths which marked the presence of the several varieties of Cholera as well as Endemic Dysentery, during the past summer.

During the fifty-two weeks embraced within the dates January 1st and December 30th, 1854, there have died of the population of our city 11,784. By reducing to a mean, the population for the year, which gives 432,500, it follows that the average of deaths would be 36·70 in every thousand, or 32·28 for each day, 226.1-7 each week, and 982 each month.

The increase over the deaths for 1853, which amounted to 9,744, has been 2,040, equivalent to 9·48 per cent.

Of the total number of deaths, 3,309, or 28·08 per cent. perished within the first year of life. Five thousand eight hundred and fifty-three, or 49·58 per cent. within the fifth year. Under twenty, 6,800, or 58·70 per cent. These calculations include the Still-born.

Only fifty-three of all who died, lived until the tenth decade of life—over 90—and 13 were centennarians.

The following table will exhibit at a glance the mortality for the year, of diseases grouped together in classes, and from other causes, together with the rate of per centage compared with the whole number of deaths:

	Yearly Mortality.	Per cent. to whole number.
1. Endemic and Contagious diseases. Zymotic or Epidemic,	3306	28·05
2. Uncertain or General Seat. Sporadic diseases,	1375	11·66
3. Nervous System,	2176	18·46
4. Organs of Respiration,	2429	20·61
5. " Circulation,	241	2·04
6. " Digestion,	585	4·96
7. Urinary Organs,	34	0·28
8. Organs of Generation,	79	0·66
9. " Locomotion,	47	0·39
10. Integumentary System,	15	0·12
11. Old Age,	196	1·66
12. External Causes,	446	3·77
Still Born,	534	4·44
Unknown,	321	2·87

From this analysis, we learn that the Endemic and Epidemic diseases, amounting to 3,306, presented the highest rate of mortality during the year, equal to 28·05 per cent. The organs of Respiration, the next highest rate, 2,429, being equivalent to 20·61 per cent. of the whole.

Still-born children give 534, or 4·44 per cent. of the deaths, while Old Age furnishes but 196, or 1·66 per cent.

The ratio of deaths in each sex, according to the months of the year, was as follows:

Months.	Males.	Females.	Total.
January	387	362	749
February	547	477	1024
March	435	372	807
April	407	365	771
May	457	403	860
June	453	384	838
July	985	805	1790
August	939	832	1771
September	526	444	970
October	403	351	754
November	440	368	808
December	371	271	642
	6350	5434	11784

According to this exhibition, there were 6,350 male deaths

and 5,434 female deaths; showing an excess of 7·77 per cent. of the former over the latter.

The highest mortality took place in July, viz., 1790, presenting an average of 58 deaths per day. The next highest in August, or 57 per day; then February, or 36 per day. Then follow in order September, May, June, November, March, April, October, January, December, which last is the lowest, 642, or 20 deaths per day.

Consumption of the Lungs has supplied by far the greatest outlet to human life during the year, numbering 1,394, equivalent to 11·82 per cent. of the whole number of deaths, less 1 per cent. than those for 1853, compared with the total of deaths for the year.

All ages have succumbed to the power of this disease. Thirty-two were in earliest infancy, within the first year of life. Between the ages of twenty and thirty, 438, and between thirty and forty, 306, amounting to more than half of all that occurred. One was over 90, and one beyond one hundred years of age. The excess of the deaths was among females, equal to 3·29 per cent.

During the year the Alms-house furnished 951, or 8·07 per cent. of the whole number of deaths. The colored population 709, or 6·01 per cent, while there were 67 brought in from the country to add a fraction to the mortality of the city.

The subjoined table presents a synopsis of the diseases which have been most fatal, and hence most prevalent, for seven consecutive years in this city:

	1848	1849	1850	1851	1852	1853	1854
Cholera Infantum	454	582	505	397	329	398	715
Consumption of Lungs	965	939	907	881	1204	1246	1394
Congestion of Brain	85	91	97	130	120	172	222
Convulsions	401	415	444	479	499	543	695
Croup	177	130	143	180	208	303	304
Diarrhœa	122	225	208	157	156	130	219
Dropsy of the Brain	220	237	283	245	247	192	299
Dysentery	315	578	421	401	558	379	446
Inflammation of Brain	186	198	218	202	258	157	362
" Bronchiæ	172	169	191	175	208	197	243
" Lungs	265	273	352	352	444	353	472
Marasmus	237	264	217	255	354	376	457
Scarlet Fever	172	242	439	400	433	391	165
Small Pox	100	152	40	216	426	52	40

To the sanitarian and the medico-politician, as well as to every philanthropist, it becomes an interesting subject of inquiry, what proportion of the annual deaths of our city for 1854, or any other past year, have been occasioned by untimely and preventable diseases. To arrive at correct conclusions on this important topic, we need scarcely advert to the necessity of appealing to the average deaths of a series of years. To illustrate the subject by the mortality of an isolated period, would furnish only a rational approximation to the truth; yet enough may be gathered from the estimate, to throw some light upon the great disproportion of those deaths in the midst of an urban population, preventable and premature, to those which are the result of natural causes or the fixed laws of nature.

Acute diseases of almost every form, dependant in a great measure on local and obviable causes, rob our population annually of thousands in early infancy, in the vigor of youth and in the prime of manhood; and be it known, that it is scarcely reserved for a twentieth part of our community to reach its "three score years and ten."

This early abridgment of human life, this rapid decay, this desecration of the living, would seem to be peculiar to metropolitan populations, and if the records of those historians who have supplied us with documentary evidence, and traced from year to year the effects of the large expenditure of life in cities to their causes, may be relied upon, then may we naturally conclude that the remedy lies within our reach—an efficient sanitary organization—which, in its widely adapted signification, shall apply its scientific labors to the physical, social and, we would add, the moral condition of a large proportion of our population.

We need not, however, enlarge on this vital and indispensable department of sanitary science, but pass to consider the great pressure of mortality on the young in our city as the result of preventable diseases, and the large disproportion between them and those more advanced in life.

As a single illustration of the large demand made by death upon our infant population, we need only advert to the fact that, during the year 1854, five thousand three hundred and nineteen

(5319) children died in the first five years of life,* equal to 47·28 per cent of the whole number of deaths, while, according to the census of 1850, the proportion of our population under five years is not over 1·04 per cent.

This enormous extinction of life in early infancy, as compared with the proportion of children to the whole population, must depend upon certain physical causes, which, when brought under an efficient sanitary organization, would in all probability prove comparatively inert.

If we look carefully over that class of acute diseases enrolled under the head of "Epidemic or Endemic," many of which owe their fatality to local and remediable influences, we shall find that, of the whole number of deaths for the year, amounting to 3,306, nineteen hundred and ninety-nine (1,999) or 60·49 per cent., were among children under five years of age.

Nearly the same rate prevails in some other classes, and it is not irrational to infer, that if a judicious attention should be directed towards the remedying of those physical, social and moral evils which contribute a very heavy per centage in the destruction of infantile life in large cities, the mortality would be reduced one half its present average.

Of the whole number of deaths for the year 1854, it would not be unreasonable to contend, that two-fifths of them owe their occurrence and are, perhaps, intimately dependent for their origin on causes which are easily recognized as local and removable.

By separating those deaths in the table which come under the head of Still-born, Old Age, Unknown, External Causes and Debility, amounting in the aggregate to 1,955, and estimating that one-half the remainder are the result of chronic diseases, which do not come within the sphere of preventable deaths, we have left 4,914 properly belonging to acute ailments, which under an improved system of sanitary science, are partially or wholly capable of being so far ameliorated as to be deprived of their fatal character.

* This calculation does not include the Still-born children, which amounted to 534.

Of that distinction of deaths regarded as the result of diseases local and preventable in their character, may be included the Epidemic and Endemic or Zymotic, Marasmus, Convulsions and Diseases of the Brain in Children, Inflammation of the Lungs and Bronchiæ, acute diseases of the Liver, Stomach and Bowels, Intemperance and Mania-a-potu.

Valuable indeed will be the reform in our sanitary police arrangements, when the death rate is reduced to one-half its present per centage; but while there is no likelihood of so pleasing an immunity from disease and death in our city as the above suggestion contemplates, we may still dwell on the promise of reform from year to year, as the science of Hygiene advances, until the population of all large cities shall compare in health with rural districts.

Introduction of a stick or swab-handle more than ten inches long into the stomach—its exit by an abscess—cure. By FRANCISCO GARCIA Y GARCIA, of Daimiel (Mancha baja.)

(Translated for the Medical Examiner from El Porvenir Medico of June, 1854.)

Mateo Sanchez de la Nieta, native of the town of Daimiel, aged between 45 and 50 years, contracted a syphilitic disease, which, after a time, affected the fauces and posterior part of the mouth. His attending physician, a distinguished practitioner, directed that the parts should be cleansed several times daily, and for the purpose constructed a swab with which he made the first applications, but not being sufficiently long the patient had it spliced until the stick was more than ten inches (una tercia) in length.

One afternoon in the month of September, he was alone in his house and complying with the directions of the practitioner; but the presence of the swab, the stimulus of the medicament, the contraction of the muscles of the pharynx, a spasmodic movement, the carelessnesss of the patient, or all conjoined, caused him to relinquish his grasp of the instrument, which remained in the back part of the mouth. While thus embarrassed, one of his daughters came in, who perceiving him in distress, and not able to answer questions, gave him water, which he asked for by signs, which not being able to swallow, was returned by the mouth and nostrils, with suffocating effect; some persons in the vicinity

seeing him sought a physician; in the mean time, which was not long, the stick descended the œsophagus, the upper extremity fixing itself between the pomum Adami and the anterior portion of the fork formed by the sterno-cleido-mastoideus, producing a salient angle on the left side, which the patient indicated to the bystanders. A suffocating condition recurring, caused him to abandon it, and with the movements it disappeared not only from sight but also from the touch of the practitioner, who arrived after the patient had recovered from the paroxysm which followed that state. They gave him some spoonfuls of an anti-spasmodic mixture, which he swallowed with less difficulty than the water given him by his daughter. He recovered his speech somewhat, and complained only of anguish and smarting in the throat, and towards the left side a little above and front of the nipple of the same side, which gradually ceased, disappearing on the fourth day, the patient, physician and friends being left in an unhoped for quiet.

Eight days subsequently the patient felt, deep in the left side of the epigastric region, sharp pains, running towards the last false ribs, increasing every hour, accompanied with gastric irritation and febrile symptoms, which led the physician to suggest a resort to spiritual aid. On the following day, (the 14th from the ingestion of the stick) the greater part of the gastro-peritoneal symptoms, which indicated great peril, abated, the patient remaining almost without fever from the 17th to the 20th. Under these circumstances the practitioner proceeded to a minute examination of the patient, and ascertaining the existence of the stick in the cavity of the stomach, proposed to the patient the operation of *gastrotomy*, to which he objected his age, his severe suffering, his present comfortable condition, and finally that he would not submit, though it would cost him his life.

The practitioner forced unwillingly to yield to the entreaties of the patient, and abandon all operations, directed him to eat, assuring him his condition was not as flattering as he supposed. At the expiration of ten days (26th of the accident) the patient presented himself at the house of the physician, asking him to examine an *apostume,* as he called it, which had appeared far below the nipple of the left side. The next day it was opened by a crucial incision, and a large quantity of pus, both well

formed and bloody, was discharged; with the evacuation the patient grew worse, but four days after the incision, having improved somewhat, and feeling himself much better, without waiting for the physician, he determined to remove the dressing and cleanse the wound: a female neighbor, who was present to assist him, saw with wonder what appeared to be the end of a black stick in the opening of the abscess; encouraged by the patient, she seized the foreign body and drew it, and they saw with astonishment four or five inches of the stick of the swab projecting.

In the midst of the conflict of the two, they thought of and sent for Dr. Povil, who came at once to the aid of his patient; he took the stick,—and assisted by the exit of pus, contractile movements of the stomach, muscles of inspiration and traction of the woman,—brought it to the surface, in *the intercostal space formed between the third and fourth false ribs of the left side*, as far as the point where it was spliced; then he seized the stick at the splice, fearing that the thread which bound it might give way, in consequence of putrefaction, which he presumed might have occurred since its ingestion: but this fear vanished when the point of the splice passing through the intercostal space, the thread was found unaltered; the extraction was continued until the extremity of the stick, to which threads or a frayed rag were tied, reached the external wound, where it stuck, causing new and sharp pains in the stomach, which, although they subsided, were followed by great distress and a soporose state. Having recovered, the practitioner continued his exertions, and introduced his thumb into the wound, and by forcibly depressing the inferior rib, succeeded in dislodging and extracting the entire swab just as it had entered the mouth 28 days before. It was followed by a flow of pus, considerable blood, and gastric juice through the wound, together with some partially digested alimentary substances which had been eaten in the morning.

Care was taken in dressing the wound to avoid the introduction of air into it. He was placed upon his back with head and shoulders elevated, ordered a strict diet, being allowed a few spoonsful of acidulated water for drink. The stick was found to be of black poplar, (Populus nigra), and more than a tercia (a third of a Spanish yard) or about eleven inches in length. The patient passed an uncomfortable night, but slept at intervals in

the early part of the next morning. On the 4th day from the removal of the stick the wound was of a dark color, owing to the presence of some coagula of blood; these came away the next day with the poultice, and the wound assumed a healthy appearance, and was completely healed in 26 days from the removal of the stick, and 49 from its entrance by the mouth.

This case occurred at Daimiel in the month of September, 1832, and was well known among the people. The statement is from the patient before death and from his children who witnessed it. In 1834 Sanchez had a light attack of cholera; but during the ten succeeding years he worked as gardener and laborer without suffering from any serious indisposition; he remained fat and healthy until May 1844, when the writer began to practice in the town. He died in 1849 of an acute attack of pleuro-pneumonia. [W. S. W. R.]

Inquiry into the number of victims by Lightning, and into certain Phenomena observed in Men and Animals struck by Lightning. By M. Boudin, Physician in Chief to the Military Hospital of Roule. (*Memoir read before the Academy of Sciences, sitting of the 23d of October.*)

(Translated from the French for the Medical Examiner.)

The dissertation which we have the honor to submit to the Academy has for its object to call attention to, 1st, the great number of deaths by lightning, and of accidents caused by it.

2dly. To certain phenomena observed in men and animals struck by lightning.

If means capable of protecting man, dwellings and vessels against lightning are too frequently neglected, it is because the extent of the evil is very generally unknown.

Besides, the medical history of lightning-stroke has been, hitherto, so little studied, that the signs by which death by it has been recognized are not to be found in any of the treatises on legal medicine. From this double claim, our discourse will not, perhaps, be devoid of a life-like interest.

"The number of persons destroyed by lightning is so limited," said M. Arago, "that the probability of death by such means may be considered as trifling. The journals of 1805 did not record a single death by lightning in France. In 1806, the

death of but two children was mentioned; in 1807 two husbandmen only were struck; in 1808 but one waterman is mentioned as having been killed by this agent." Such was the statement of M. Arago.

According to M. Kœmtz, the fear of lightning arises from *early prejudice, inculcated by ignorant parents.*

As regards the opinions of these two learned men, if we interrogate facts, we shall find that, in the short period from 1835 to 1852, not less than thirteen hundred and eight persons were destroyed by lightning in France. We speak only of those who were *instantaneously* killed. As for our documents, we have taken them from the recording office of the Minister of Justice. The number of persons killed by lightning has increased, in 1835, to 111; in 1847 to 108 persons. It is evident, however, that the number who were *instantaneously* killed does not include all who were victims to this cause.

In 1797, Volney mentioned that, in the United States, in three months, 17 persons were killed by lightning and 84 seriously injured. From these data, we think that the number of persons struck by lightning should be estimated to be at least three times greater than that of those instantaneously killed. It should hence follow, that the mean of persons struck by lightning in France annually exceeds two hundred in number.

In consulting other official documents, we have found the annual mean number of individuals killed, *at once*, by lightning in other countries to be, in Belgium, 3; in Sweden, 9·64; in England 22.

We have constructed a geographical chart, making a division into departments, of the deaths caused by lightning. From this document it follows,

1st. That no department completely escapes from such accidents.

2d. That they are very unequally distributed in the different departments.

3d. That the maximum of deaths by lightning is found in those departments which combine to form the central table-land of France and a few other mountainous departments.

Thus, in the period we have examined, we find two deaths in Eure, three in Eure et Loir and Calvados, which number increases to 20 deaths in Cantal, 24 in Aveyron, 27 in Corsica, 38

in Saône-et-Loire, 44 in Haute-Loire, 48 in Puy-de-Dôme. Altitude, hence, appears to have an important effect.*

From the observation of 29 cases of vessels struck by lightning, at different times of the year, M. Arago concluded that, "at sea, lightning occurring in warm weather is much less dangerous than in cold."

In examining 103 instances of persons struck by lightning in France, we have found the following distribution: January none, February none, March 4, April 6, May 8, June 22, July 13, August 19, September 14, October 15, November none, December none. It follows, that, at least in France, the four cold months of the year may be said to be exempt from deaths by lightning.

As regards the sexes, 100 persons killed by lightning give us 67 men, 23 persons of whom the sex was not mentioned, and only 10 women. In Sweden, we find 5 men killed to 3 women; in England, 32 men and 11 women.

The maximum of persons killed by a single stroke of lightning, in the authorities we have been able to consult, has not exceeded the number of 8 or 9.

Animals are frequently more injured than the human species. Frequently entire flocks have been destroyed by one stroke of lightning. According to M. Abbadie, a single stroke killed two thousand sheep in Ethiopia.

In a number of instances, the shepherd, the horseman and the sportsman have been spared, whilst the thunderbolt struck cattle, horses and dogs.

Of 107 individuals killed by lightning from 1841 to 1854, we find 21 mentioned as having perished *under trees.*

We should add, however, that the place of death is not always mentioned, whence we have a right to infer that of the 1308 persons killed *instantaneously* in France from 1835 to 1852, three hundred at the least, would have escaped death if they had not sought shelter under trees.

Such facts deserve, we think, to be made public.

Fires caused by lightning are very numerous; their number has been as high as eight in a single week, in the departments of Meuse, of Moselle, of Menthe and Vosges.

* . . . . Feriuntque summos,
Fulmina montes. (Horat. i. 11, od. 7, ad Lic.)

The little kingdom of Wurtemberg, alone, shows, from 1841 to 1850, one hundred and seventeen fires caused by lightning.

Immense losses result by it to the sea service. From 1829 to 1830, during a period of fifteen months, five English vessels of war were struck by lightning. The Resistance and the Lynx were completely annihilated by it. The official reports to the English government show that the damage formerly caused by lightning to the royal service was never less than from 6,000 to 10,000 pounds sterling, annually, (150,000 to 250,000 fr.) In 200 cases of thunder-stroke, 300 sailors were killed or wounded; 100 main-masts, worth from 1000 to 1200 pounds each (25,000 to 30,000 fr.) were entirely destroyed. In the period alone, from 1810 to 1815, 35 vessels of the line and 35 frigates, besides other vessels of less importance, were put out of service in consequence of being struck by lightning. Since all the vessels of the royal marine, however, have been provided with lightning rods, the official reports have not mentioned the occurrence of any damage from this cause.*

It has been often stated that lightning has never set fire to powder contained in magazines. We have but one objection to make. It set fire to the powder magazine of Tangier on the 4th of May, 1788, to the magazine of Luxembourg, on the 26th of June, 1807, and to the magazine of Venice, on the 9th of November, 1808. Finally, in 1769, in falling, it struck the powder magazine of Brescia, destroying the sixth part of the dwellings there, and causing the death of three thousand persons.

These facts are sufficient, we think, to show the extent of the evil, and the necessity of our serious attention to it.

In a second discourse, we shall resume the symptomatology of the accidents caused by lightning, as well as the present state of science of the pathological anatomy of these accidents.

There are two points, as important as they are curious, in the medical history of death by lightning, we would wish to call the attention of the Academy to. 1st. The images (perhaps photographic) made upon persons struck. 2d. Of death, the attitude remaining that in which the person was, when struck. These two facts have not only a scientific interest; they may yet acquire a high importance in *legal medicine.*

* Sir Snow Harris, Rudimentary Electric. London: 1851. P. 188

As far back as 1786, two members of the Ancient Academy of Sciences cited, according to Franklin, the history of a man who, whilst standing at the door of a house, saw the lightning strike a tree which was before him. He found, says the report, *the fac-simile of the tree* upon his breast.

The circumstance was attributed to chance, or what was thought more likely, to a casual sanguineous effusion.

An analogous fact, which we had occasion to observe ourselves, determined us to make some researches, and this is the result of our investigation.

A woman of Lagun was struck by lightning: a flower which was in the course of the electrical current, was sketched upon her leg, and she preserved the trace of it during the remainder of her life.

In the roadstead of Zante, a sailor after being struck by lightning, discovered upon his breast the number 44, identical with that fixed in metal to the rigging of the ship.

In 1825, lightning struck the brigantine Il Buon Servo, and on the back of a sailor killed by it, was found the image of a horse shoe of the dimension of the iron nailed to the mizzen-mast.

On the 9th of October, 1836, in a storm near Zante, the young Politi was struck by lightning and killed. Doctor Dicapulo, charged by the Coroner to proceed to the examination of the body, mentions in his report the following facts:

"Young Politi, lying upon a bed, was dressed in a cotton jacket of a dark color, linen pantaloons, and waistcoat spotted with flowers. He wore a cravat of black silk, and a white sock upon his left foot; his right foot being naked. His half-boot, lying at the foot of the bed was ripped, and all his clothes, partly torn, were found burnt upon his back."

"M. Dicapulo adds, that in the right pocket of his coat were found a snuff-box and handkerchief, and in the left a parcel containing cream of tartar, &c.

Having entirely undressed him, says he, we saw about his loins a tight linen belt, and in the lining of this belt we found fourteen pieces of gold enveloped in two packages of paper; one in the right side contained a Spanish pistole, three guineas and two half guineas; that which was on his left side enclosed another Spanish pistole, four guineas, half a guinea, and two Venice sequins. Neither of these pieces, nor the paper, nor the linen, presented the slightest mark of scorch or burn.

"Under his right foot a wound or gash of more than an inch in length, made us imagine that the lightning had penetrated by this extremity,

and the passage was traced the whole length of the body; the leg and the right thigh, the buttocks and the back up to the neck, were strongly marked of a blackish color, and in all these parts the skin presented slight rents or ramified lacerations; the hair upon his body was almost all burnt, as well as his eye-lashes, his eye-brows, and his hair, particularly that behind his head. Little brown spots of the form and size of a lentil were scattered over his face. Finally, what appeared to us as most extraordinary," says Dr. Dicapulo, "the body had in the middle of the right shoulder, six circles, which preserved their flesh color, and appeared much more decided from the blackish color of the skin. These circles, one after the other, touching each other in one point, were of different sizes, corresponding exactly with the pieces of gold which the young man had in the right side of his belt, all of which was certified to by the coroner and by all the witnesses after the comparison was made.

We came to the conclusion that the unfortunate Spiridione Politi was struck by an ascending stroke of lightning, which, entering his right foot, traversed his whole body, burning the hair upon the surface, and penetrating the flesh, all of which was proved by the scarifications, the spots and the bronzed color of the skin; that the bituminous smell was owing to the decomposition of the fat of the body and the burning of his clothes; that the pieces of gold strongly attracted the electrical current, increased it, and carried the impressions to the extremity of the conductor, where they were fixed when it passed through the space which separated it from the window, by which it escaped.

I should not have been astonished if the electricity had melted or united the pieces of gold which were in its passage, leaving untouched those which were in the paper on his left side; but in granting, not without some difficulty, that the electric fluid may seize the impression of certain bodies which it meets with, and carry them to a distance, I do not understand how six pieces, piled up together, could be thus represented distinct and in a row. Many witnesses attest the fact; let us content ourselves with noting it, and collecting other facts of the same kind, inexplicable though they may appear to us."

In 1841, in the department of Inde et Loire, a magistrate and a miller boy, in the neighborhood of a poplar tree, were struck by lightning. Upon the breasts of both were found marks precisely similar to the leaves of the poplar.

Let us pass to the phenomena, which, for brevity, we shall call *death standing*.

We have seen the body of a man, who, after being killed and stript of clothing by lightning, remained in an upright position.

Cardan tells of eight harvestmen, or reapers, who took their repast under an oak; having been struck by lightning they retained their attitudes after death. One appeared to be still eating, another drinking, and another one extending his hand to his glass.

Father Beccaria and Dr. Gabrielli relate the history of men remaining in an upright position, who were killed by the electric fluid. We are familiar with several other facts of the same kind.

We all remember that in July, 1819, when the church of Chateau-neuf-les-Moustiers having been struck by lightning, *all* the dogs that were in the church were found dead, but on their legs.

M. Desormery has described a flash which struck him in 1849, and killed close by him a goat, which was found standing on its hind legs, still holding in its mouth a green branch.

Finally, among the most surprising facts of this kind, an instance is given of a priest who was struck by lightning while on horseback. The animal proceeded on his course and brought back the rider, dead it is true, but in the usual attitude of a man on horseback.

Plutarch speaks of a Spartan soldier, who, after vain efforts to keep the dead body of a man in an upright position, abandoned his design with these remarkable words, "Decidedly there was something within this." Well, what the Spartan soldier attempted in vain, is brought about by the action of lightning.

To sum up; 1st, the accidents caused by the electric fiuid are serious and much more numerous than have hitherto been supposed.

2d. The mean annual number struck by lightning in France appears to exceed 200.

3d. The maximum of the accidents in France corresponds to the departments of the central table lands and mountainous districts.

4th. Women perish in a relatively small proportion.

5th. Among one hundred individuals thunder struck, twenty-five perish under trees.

6th. The upright death, or rather death with the attitude unchanged, and the photographic images, are phenomena of sufficient frequency for them to be taken into consideration in legal medicine.—*Gazette Medicale.*

The following newspaper extract was obligingly sent us by a friend:

"*An Electrotype*.—The Patterson (N. J.) Intelligencer gives a curious incident of the late thunder storm.

"A little girl was standing at a window before which was a young maple tree. After a brilliant flash of lightning, a complete image of the tree was found imprinted on her body. This is not the first instance of the kind, but it is a singular phenomenon."—*Public Ledger.* Ed.

Calculous Phthisis.

(Translated for the Medical Examiner from the Gazette Medicale.)

M. Forget presented to the Academy of Medicine (meeting of 10th of Oct.,) a work entitled, Clinical view of Calculous Phthisis (not of tuberculous origin.)

From the facts stated by M. Forget, it should result:

1st. That pulmonary calculi can be primary, *sui generis*, that is to say, independent of the existence of tubercles, of inhaled dust, &c.

2d. These calculi can be solitary, either existing alone or in small numbers in the lungs.

3d. They may remain for a lesser or greater length of time, perhaps indefinitely, in a latent state in the lungs.

4th. They may occasion symptoms analogous to those of tuberculous phthisis.

5th. Calculous phthisis can be and is cured without relapse by expulsion of the pulmonary calculi, when they are either solitary or in small number.

6th. Hence calculous phthisis exists as a special affection, distinct from tubercular phthisis.

7th. Calculous phthisis differs essentially from tuberculous phthisis by its anatomical characters as well as by its terminations. Its differential diagnosis, drawn from its etiology, from its symptomatology, its course and treatment remain to be investigated.

Upon the nature of the Sausage Poison.

(Translated for the Medical Examiner.)

The following data are extracted from a notice in Schmidt's Jahrbuch (78, 4) of Prof. Julius Schlossberger's essay upon the *Sausage Poison.* (Vierordt's Arch. xi. 5.)

"The first notice of poisoning by sausage dates from the year 1735. Most of the cases known up to the opening of the pre-

sent century are found in the Journals of Autenrieth, Kopp, Hufeland, Henke, Rust, Horn, in the works of J. Kerner, and in scattered dissertations which Schlossberger particularly cites. The instances of *poisoning* by *fish* have been principally referred to abroad, by Christison, Lichtenstädt, Orfila, Chevallier and Duchesne.

Sausage poisoning is found, as is well known, to occur principally in *Swabia;* S. estimates the number of cases of sickness produced by sausages in Würtemberg, within the last 50 years, to be at least 400, and the number of deaths from the same cause at least 150. Isolated cases have also been observed in Baden, Bavaria, Hessia, Dessau, Prussia, Saxony, and two cases, not sufficiently confirmed, in France. The poisonings nearly always occur in the winter and spring months, the greatest number proportionately in the month of April, (two-fifths of the whole,) that being the period where those that are eaten have been kept the longest; while in the warm weather, they pass so rapidly into actual putrefaction with the development of stinking gases, as to cause them to be rejected by persons with even the most blunted senses.

Blood and *liver* sausages are the only kinds in which the poison ever forms, which S. explains by the mode in which the country people are accustomed to prepare and preserve them. They are, for instance, principally prepared from the blood, brain, liver and similar parts, that are more liable than others to pass quickly into decomposition; are mixed with materials also that easily ferment, such as milk and wheat flour, while the boiling is often incomplete, or too long delayed in warm weather. The smoking also is often incomplete, either from defective smoke houses or from the diameter of the mass being too great, (in the so-called "blungen," or hog's stomach.) In such preparations the stinking putrefaction may be kept off or delayed, but full play is permitted to another species of decomposition the more dangerous, because impossible to be detected by the senses. Besides, these badly smoked sausages are often kept tightly packed in close, confined places. This kind of sausage, moreover, is often prepared by unskilful country butchers, or by the peasants themselves, who, to prevent the intestines from bursting, often purposely commit great errors in boiling and in filling

them ; too often leave hollows that are filled with fluid, or suffer the sausage to be too greatly penetrated by the broth. All the kinds of blood and liver sausages are of considerably greater diameter than those made from meat, and consequently are more difficult to stuff tightly and to smoke thoroughly (especially in the central postions) than the latter; the poisonous decomposition proceeding evidently from the centre outwards. In place of the blood of swine, that of cattle and of goats is often in part substituted, together with the plucks of sheep. That poisonous properties should likewise be found in such sausages cannot surprise us, when we bear in mind the similarity in composition of the blood and tissues of all the higher animals. Neither spices nor salt, which are generally used in great amount by the country people, prevent the commencement of this species of putrefaction. The character of the intestine used (those of swine and cattle) can have no influence upon the development of the poison, beyond that which arises from imperfect cleansing, and from the too great diameter, rendering the stuffing and drying more difficult.

But few *perceptible physical changes* are exhibited in the poisonous sausage. They often contain in the interior spots like curds or soft cheese, and occasionally are of a crumbly, almost brittle consistence, that extends more and more towards the circumference. Frequently nothing peculiar is presented to the taste or smell ; the odor is somewhat disagreeable, resembling that of rancid fat. It is very probable that this odor is due to the formation of volatile fatty acids, since the neutral fats are always present in these sausages, under circumstances favorable to the decomposition of their fatty basis, the protein bodies present serving as ferments, or perhaps giving rise, by their own spontaneous decomposition, to these acids. The taste is described sometimes as sour, sometimes as bitter, or as rancid. A sausage examined by S. showed in its centre softened, curdy places ; possessed an acid reaction, (free lactic acid,) an odor resembling butyric or metacetonic acid, and developed, by the addition of weak potash, an ammoniacal and also an extremely disagreeable odor ; hydrochloric acid produced therewith copious fumes. The intestine was mouldy ; the peripherical layers of the sausage were of normal appearance and not of acid reac-

tion. It is not, however, proved that these softened places are the seat of the poison, many poisonous sausages not possessing them, and it is decided that different portions of the same sausage proved injurious with one individual and harmless with others; and of various spoiled sausages, subjected to the same conditions, some produced symptoms of poisoning, whilst others did not.

The action of the sausage poison upon the human body has, however, been more thoroughly investigated than any other of its properties. The phenomena which it calls forth, consist of functional disturbance of the intestinal canal, of the nervons system, respiratory apparatus, and diminution of the secretions. These symptoms have often been compared with those produced by poisoning with digitalis and with lead. S. considers them of interest, so far as they are capable of throwing light upon the nature of the poison, and directs attention especially to the facts, that the rate of mortality is extremely great; that the poison operates far more fatally upon weak, old, decrepid persons, than upon those otherwise strong and in health; that it is extremely dangerous, even in very small doses, (one or two thin slices of sausage); and that acid fluids appear to heighten the poisonous phenomena.

No constant alterations are found upon the bodies of those that have died from this poison, other than inflammatory spots in the intestinal canal, great muscular rigidity and remarkably slight symptoms of decomposition. In cases where, on the contrary, even during life, evidences of dissolution of the blood and afterwards of rapid decomposition in the corpse are found, it is always due, in part at least, to the use of sausages in stinking putrefaction, and these cases evidently belong to an entirely different class of poisonings.

Nothing satisfactory is as yet known with regard to the action of the sausage poison upon *animals*. S. found that a famishing terrier, which had greedily devoured several ounces of a sausage, (with smeary, softened places,) showed no ill effects from it, after the lapse even of four weeks, although it had fatally sickened a number of men who had eaten of it. This coincides with the experience of many other authors. S. here remarks upon the great necessity of caution in the transference of the deductions from toxicological experiments upon animals to man, and vice

versa, particularly with the carnivora, whose intestines, frequently containing large quantities of putrid substances, carrion, &c., require that the gastric juice should possess the most energetic digestive powers. Although Kerner poisoned a large number of animals with substances prepared from spoiled sausages, yet, S. remarks, that those experiments can have in this respect no value, because they were made in part with products from the destructive distillation of hog's fat, and the remainder with impure fatty acids, obtained from the common neutral fats by saponification and subsequent decomposition by the mineral acids, and were in no instance derived from spoiled fats.

According to Buchner and Schumann, who operated with the portions of spoiled sausage, soluble in alcohol, the diluted poison exerts upon animals little or no action; and even when concentrated has much less effect than upon man.

The views that have been formed at various times with regard to the *nature* of this poison, have proved for the most part untenable. For instance, that it is due to an impregnation with metallic poisons; that it is owing to a peculiar decomposition of the sausage forming prussic acid; that it depends upon certain constituents of the smoke, (creasote, pyroligneous acid, &c.;) to the use of poisonous seeds (cocculus indicus) in place of the ordinary species; and finally, that it is due to the production of Welter's bitter (carbazotic acid) or some similar substance. The opinion that the materials used in the noxious sausages have been obtained from diseased animals, is satisfactorily shown in most cases to be without foundation. S. Kerner's views approach nearer the truth, in considering the poison to be produced by a decomposition of the substance of the sausage, not, however, identical with the common forms of putrefaction. But as K. obstinately maintains the fatty nature of the poison, he confounds together the most varied products of the decomposition of the protein bodies with those of the neutral fats. Besides, the margaric and stearic acids, the oily pyrogenous acids and the less volatile fatty acids are not poisonous; at most, the latter are corrosive only in their very concentrated state. Of course, experiments with the products of destructive distillation can lead to no conclusions with regard to the nature of the products of fermentation and putrefaction.

The labors of Buchner and Schumann, who were the first to prepare the aqueous and alcoholic extracts of the sausage, only prove, 1st, that the poison is soluble in alcohol. 2dly, that the alcoholic extract is accompanied with much fat. Liebig represents the sausage poison as being a ferment arising from the putrefaction, and which introduces into the fluids and tissues of the living body its peculiar decomposition, and supports his view by fruitless attempts to isolate the poison, and by the destruction of the poison by treatment with alcohol or boiling water. While, however, Buchner's and Schumann's results rather contradict than confirm Liebig's position, experience has further shown that boiled and baked sausages can cause poisoning, and the phenomena produced (diminution of secretions, &c.) are directly opposite to those produced by the poisons of putrefaction. Since all the theories of the nature of the poison, capable of experimental proof, are not yet exhausted, S. thinks it best to discard the idea of a ferment, as its nature prevents all further investigation, and in place thereof, he proposes his supposition as applicable to most of the cases, and which has already been strengthened by many facts. This theory attributes the action of many poisonous sausages to the presence of an organic base, somewhat similar to nicotine, and is founded upon, 1st, the premises already, in great part, established, that in poisonous sausages and cheese, organic bases are formed by the decomposition of the protein bodies; and 2dly, upon the previous supposition that they give rise to these peculiar symptoms of poisoning, a thought that seems already to have occurred to Kastner, as he suggests the existence of an alkaloid derived from the mould in the sausages. The presence of such volatile bases in the decomposition of nitrogenous animal substances, from which ammonia is subsequently formed, is certainly more than probable, and in many cases stated by Stenhouse, shown to be constant. S. has also found ammonia in large amount in the noxious sausages, and remarked at the same time, a peculiar, disagreeable odor. The behaviour of the greater part of the substances homologous with ammonia, in the organism, is still unknown, and at all events each of them requires a physiological investigation; for out of the innumerable bases that have been and will yet be discovered, many, that are very similar in composition, exert very different

effects upon the body. On the other hand, nicotine, coneine and spartein (the three best known representatives of the volatile bases from the vegetable kingdom, and whose close relation with ammonia cannot be ignored) are well known for their extraordinarily poisonous properties. It is certain that alkaloids, like leucine and tyrosine, are found in old cheese, and if these harmless substances occur, why should they not, under certain circumstances, be accompanied by poisonous bodies possessing the same chemical character? S. here observes, that opium, together with bases that act powerfully upon the organism, also contains alkaloids that are perfectly indifferent in this respect. S. also cites the instance of the volatile bases that Wertheim and Hofmann have shown to exist in herring pickle (propylamine, trimethylamine). S. finally endeavors to make use, for his hypothesis, of the circumstance discovered by Kerner and A——, that the products of destructive distillation of fresh blood-sausages cause similar symptoms in animals to those of the sausage poisoning. He there points out (according to Anderson's investigations upon the pyrogenous oil from bones) that during the destructive distillation of nitrogenous bodies, together with the so-called empyreumatic bases, the alcohol bases, such as methyl, æthylamine, &c., also appear, and that these, (like the separation of leucine into valerianic acid and ammonia,) form the necessary steps, in place of the fatty acids and ammonia. S. would also seek for the same volatile bases in poisonous mushrooms, in ergot, in rotten potatoes, in the air of graves and cloacæ, and even in the so-called cadaveric poison, and considers them as the cause of the action of these substances upon the organism.—*Not. fur prakt. Arzte.* 1854. *Band* 6. *S.* 485.

H. P.

BIBLIOGRAPHICAL NOTICES.

The Transactions of the American Medical Association. Instituted 1848. Vol. VII. New York: CHAS. B. NORTON, 1854.

In our last number, we mentioned the appearance of the volume now before us. We shall at the present time bring before our readers the report "of the Medicinal and Toxicological properties of the Cryptogamic Plants of the United States," by Dr. F. Peyre Porcher, of Charleston, S. C., a gentleman well and favorably known by his previous paper in the 2d Vol. of the Transactions, and as one of the Editors of the Charleston Medical Journal.

It is not our intention to make a critical review of the report, as this could not be done, in a manner at all satisfactory, within the space allotted us. We shall merely take it as a text for a few general observations on the subject, and for pointing out one or two facts, showing the advantages which have accrued to medical science from the study of Cryptogamic botany.

Since the time that hypothetical imaginings as to the causes of the phenomena of nature were recognized as subservient to observation and philosophical experiment, there has been a constant and gradual accumulation of an immense number of facts in every department of physics and Natural History; and science has been continually adding some new and valuable contribution to that rich collection of gifts, which she has already bestowed. The progress of science is in fact, a series of individual discoveries, and the smallest addition to the common treasury of knowledge is a service of inestimable value.

This paper of Dr. Porcher, on the medicinal and toxicological properties of the cryptogamia is especially welcome, as tending to throw additional interest over a department of botany for which we have always felt an especial attachment. The Linnæan maxim "*Natura maxime miranda in minimis*," nature is chiefly to be admired in the least things, is very appropriately placed at its head. This truth is as yet only partially appreciated, al-

though it is one that should never be lost sight of in the study of nature. If it be philosophical to proceed from the known to the unknown on the pathway of a sound induction, it is equally so to trace the operations of nature in the simpler forms of life, before we attempt the more complex.

The development of the simple before that of the more complicated, appears ever to be the plan of nature, whether her operations be traced in time, or through the dark geological periods of the past. Not only may every animal and plant be traced back to a few simple cells, but the whole organized world is only a series of forms which exhibit the successive stages of their development.

It is well known to naturalists that there are amongst the simplest protophytes and protozoa, plants and animals which are composed of a few cells, or which are even unicellular in their organization. It is here that the animal appears to be blended with the vegetable. It has been said that the animal differs from the vegetable cell in that it possesses the power of motion. But this distinction fails. The spores of several of our fresh water algæ, as for instance *Conferva rivularis*, when first discharged from the plant, move about in the water by means of ciliary appendages during a part of their life, and were actually figured as infusorial animals, in this stage of their development by Ehrenberg, but after a while these little infusoria lose their ciliæ and become transformed into these well known filamentous aquatic algæ. Even chemical analysis fails to aid the naturalist, for cellulose, which was long regarded as peculiar to plants, has been found in the tunics of Ascidians, and in the brain of man. All researches into the limits between animals and plants in this condition of their organization have hitherto completely failed. One fact, however, has been clearly ascertained, viz, that both animals and plants originate from the same starting point, *the cell*, and are developed according to similar organic laws.

There is every reason to believe that the history of the development of vegetation on any barren rock, or newly formed coral island, illustrates those stages by which the earth itself became covered with verdure. The first vegetable denizens of the rocky surface are usually cryptogamous plants, such as crustaceous lichens ; these are succeeded by the foliaceous species, and by such

mosses as *Polytrichum commune*, *Hedwegia ciliata*, and the different varieties of *Leskia* and *Hypnum*, &c., plants which are of very humble growth, and of exceedingly simple structure, consisting, comparatively speaking, of only a few cells. The oxalic acid contained in the thalli of the lichens, together with the oxygen of the atmosphere, slowly disintegrate the rocky surface, and successive generations of these lowly protophytes finally create a humus which gives birth to a more highly organized vegetation. The higher cryptogamia now make their appearance, Polypodium vulgare, Asplenium trichomenes, Asplenium ebeneum, together with the Saxifrages, Arenarias, Aquilegia Canadensis and other phanerogamous plants. Such appears to be the order of nature—the cellular cryptogamia preparing the way for ferns and flowering plants,—the simple preceding the complex.

That cryptogamous plants are the most ancient inhabitants of the earth; that they existed anterior to the Phanerogamia, and formed, for a long succession of ages, a leading feature in the flora of the antediluvian world, is evident, if we consult the pages of geological history. It is true that the cellular cryptogamia, such as lichens and mosses, are very seldom found in a fossil state; but this is not to be wondered at, when we remember that the preservation of plants in this condition necessarily depends on their structure. The fossil cryptogamia, which have a woody and vascular structure, have, however, been preserved in the greatest abundance.*

Fossil plants are found in the aqueous and stratified formations, which have been divided into three great groups, the Palœzoic, the Secondary, and the Tertiary. The Palœzoic rocks include the Silurian, Cambrian and old red sandstone and carboniferous formations. In the Silurian, Cambrian and old red sandstone we meet with the remains of marine plants, and also a few terrestrial species. In the old red sandstone of Scotland, Miller has detected fucoid ferns, and in the same formation at Oporto, Bunbury has found Pecopteris cyathea, P. muricata, and Neuropteris

* The absence of organic remains in rocks is not always sufficient to enable us to state that these rocks were formed before animals or vegetables existed, since the late Prof. Forbes has shown that, even in the present day, there are depths in the ocean which are destitute of organic life. Hence rocks deposited at such depths might contain no organic remains.

tenui-folia, ferns which are closely allied to those of the carboniferous period. There was land, therefore, as well as water at this remote epoch, although the abundance of fishes and marine plants seems to indicate that the sea covered the greater part of the earth's surface.

Towards the close of the palœzoic period, however, land plants appear to have been developed on an enlarged scale. Coal owes its origin to the abundant vegetation of this era; for it is now universally admitted that this substance is of vegetable origin. This the microscope has fully demonstrated. In some kinds of coal, punctuated woody fibre has been detected, in others dotted and scalariform tissue, as well as cells of various kinds. The occurrence of dotted and scalariform vessels indicates the presence of ferns and their allied forms, such as sigillaria, stegmaria and lepidodendrons, whilst true punctuated wood implies the presence of coniferæ.

In the secondary formations we meet with numerous coniferæ, and cycadeæ, whilst ferns and lycopodiaceæ are less abundant and not so gigantic in their growth. The tertiary period is characterised by an abundance of angiospermous dicotyledons, and of monocotyledons, more especially of palms. In the flora of the most recent tertiary deposits, we meet with coniferæ, rosaceæ, legumenosæ, &c., and with a small number of dicotyledons with gamospetalous corollas. There appears to have been a similar progression in the animal creation. Thus fishes and reptiles preceded the development of mammalia, and for innumerable ages appear to have been the predominating form.

In what we have now said we have attempted to show that the operations of organic law are the same both in the animal and vegetable world; that in both kingdoms there is a *regular gradation* from the simple, or imperfect, to the complex, or more perfect.

Few, we believe, recognize as they ought to do the benefits which have already occurred to physiology, and the science of medicine from the study of a few humble cryptogamia. The great cell-doctrine of physiology, which is now admitted to be the basis of all sound scientific investigations into the phenomena of organized beings, originated in the study of vegetable matter. M. Mirbel, in a most admirable memoir on the development of

Marchantia polymorpha, a little acotyledonous plant belonging to the family of the *Hepaticæ*, was the first to show the cellular origin of every other form of vegetable tissue. He proved that the fibre cells of plants are only attenuated utricles, and that the different varieties of vasiform tissue and ducts, by which the interior of the plant is aerated, originate in a row of utricles; these gradually elongate on their internal surface, and the various secondary deposits characteristic of the different forms of spiral vessels, gradually make their appearance; the septa or partition walls between the several cellules are then absorbed, and the transformation of the utricles into vessels is completed. These observations were confirmed by the researches of Schleiden and other distinguished botanists, and thus a flood of light was thrown on the organization of plants. This discovery may thus be succinctly stated. The primitive form of all cells is that of a closed spherical vesicle or utricle. There is no plant or organ of a plant which is not at the commencement of its growth fabricated *exclusively* of cells, which approach more or less to that of a sphere in form. It is, however, only in plants which are very low in organization such as algæ and lichens that the cells remain in this condition; in vegetation of a higher grade this uniformity speedily disappears, and the individuality of the cells becomes manifest as growth progresses. While some of them continue spherical, others take a much higher degree of development and become gradually transformed into woody fibre and spiral vessels.

But how do the cells of plants originate? Whence come those new utricles which without ceasing are added to those already in existence, and which augment incessantly the mass from whence they draw their origin? These are difficult, but exceedingly interesting questions. The philosophical botanist has sought for their solution amongst cryptogamous plants, and his labors have been abundantly rewarded. A German naturalist, Mohl, selected for observation one of the fresh water algæ, which had been previously figured and described as *Conferva glomerata*. This simple thread-like plant was placed beneath the microscope, and the development of the row of utricles of which its entire organization consists, watched. Very soon, Mohl observed that the interior face of the cavity of one of the utricles presented towards its middle part a fold, which increased almost imperceptibly

tibly until it ended by forming a complete wall dividing the cavity of the utricle into two parts. Each of these then dilated itself into a new utricle. Thus in the place of one cell there were two cells, which again divided in the same way, and so on. It is in this way that a single cell gives rise to a row of connected cells, when the division takes place in one direction, and to a plane or solid mass when it takes place in two or more directions. There are other modes of increase which we have not space to enumerate,—suffice it to say that their discovery originated in the investigation of cryptogamous plants of extreme simplicity of organization.

Up to this period it was believed by the most eminent physiologists that animal and vegetable tissues differed widely in their developement; and that cells existed only in plants. Such was the condition of things in 1838, when Schwann, taking up the beautiful investigations that Schleiden had just published upon the structure and growth of vegetable cells, came to the conclusion that animal tissue consisted equally of cells, and that whatever may be the character of the tissues, whether they assume the form of muscle, bones or bloodvessels, all originate in cells of which they are but modifications. The cells which form the tissue of the higher animals in their earliest condition, present the same uniformity of appearance in their external configuration as the cells of plants; some of them retain this cellular condition throughout the life of the animal. Thus what is called adipose tissue consists of a mass of globular or dodecahedral cells containing fat in their interior. Others, however, rapidly undergo a change of form in accordance with those laws of growth to which they are individually subject, and assume the form of bone, cartilage, bloodvessels, &c. In this respect precisely the same laws govern both the animal and vegetable world.

We find some further illustrations of an instructive kind, in the minutiæ of organic structure and embryology. It has been already stated that the basis of all vegetable and animal substances consist of cells. Nutriment is converted into these before being assimilated by the system. The tissues are formed from them. The ovum destined to be a new creature, is originally a cell with a contained granule. We see it acting this reproductive part in the simplest manner in the cryptogamic plants.

"The parent cell, arrived at maturity by its exercise of its organic functions, bursts, and liberates its contained granules. These at once thrown upon their own resources, and entirely dependent for their nutrition on the surrounding elements, develop themselves into new cells, which repeat the life of their original. Amongst the higher tribes of the cryptogamia, the reproductive cell does not burst, but the first cells of the new structure are developed within it, and these gradually extend, by a similar process of multiplication, into that primary leaf-like expansion which is the first-formed structure in all plants."* Here we see the little cell becomes directly a plant, the full formed living being.

These grand discoveries which have given such an impulse to medical science originated in botanical investigations into the nature of cryptogamic vegetation, in minds which appreciated the truth of the Linnaæn maxim, "*Natura maxime miranda in minimis.*"

The examination of cryptogamic plants, with reference to their medicinal and toxicological properties, has been prosecuted abroad with considerable success; and Dr. Porcher, in his Report, has added to his own labors what has been accomplished elsewhere.

In conclusion, we cannot express the very high opinion which we have formed of this paper better than by adopting the language of an able writer in another place: "This is an able and valuable paper, one which has evidently cost its author a vast amount of labor. To bring together, as he has done in this report, the leading facts that have been developed by various observers in relation to the properties and probable available uses of the cryptogamous plants met with in this country; to indicate their respective localities, and to identify their species and varieties, so as to be able correctly to appropriate the recorded observations in relation to their curative, poisonous or other properties, was, we can readily conceive, a task of no trifling character, demanding considerable research, much time and no little patience, more especially as the entire subject belongs to a department of enquiry which has had few laborers in this country."

We shall take another opportunity of examining the other Reports published in the present number. At present it may suffice

* Carpenter's Report on the Results obtained by the microscope in the study of Anatomy and Physiology, 1843.

to say that we consider them as very creditable productions, quite equal, if not superior to their predecessors in other volumes. One word before we conclude, as to the manner in which the present volume has been published. We should have made no remark on this had not the subject been forced upon our notice by the unmeasured praises that have been bestowed upon it by one or more of the New York journals, and the unfair comparisons that have been made between the present Committee of Publication and their predecessors, in respect to the manner in which they have have performed their respective tasks.

We confess that we can discover no reason for the laudation that has been so profusely bestowed upon the committee having charge of the publication of the volume before us. The paper upon which it is printed is, we admit, of an excellent quality, while its typographical execution is as good as need be desired. In these respects the volume will compare very favorably with either of the preceding. If this can be viewed as a subject of commendation, we very cheerfully congratulate the committee upon it

We must, however, deny to the latter the credit that has been claimed for them from the circumstance of all the subscribers to the present volume of Transactions being furnished with copies bound in cloth and lettered, without any additional charge. This, it is to be recollected, was done in accordance with a recommendation of the former Committee of Publication, submitted to and adopted to by the Association at its last session. It is much to be regretted that this recommendation had not been fully complied with, and the volume before us made to correspond, in size and lettering, with the preceding volumes that were supplied to members in the same style of binding. This would have obviated the mortification which many now experience in being obliged to have upon their shelves a series of volumes of the same work, one of which is cut down nearly half an inch in the length of its page below the others, while the lettering upon its back is entirely different in its style and arrangement.

We have heard it said that the defect just alluded to may readily be overlooked in consideration of the much earlier period at which this volume of the Transactions has been issued than several of the preceding ones. We are well convinced that there has

been no unnecessary delay in the publication of the present volume; its appearance has not, however, been any earlier than that of the preceding ones. It embraces just two hundred and one pages less than the volume for 1853; it contains no wood cuts, and but four easily executed lithographs, in addition to those which accompany the paper of Dr. Brainard; which latter were engraved in Paris in anticipation, we suspect, of the presentation of the essay they are designed to illustrate. The volume of the preceding year, besides its greater bulk, contained twenty-four lithographic drawings, the majority requiring considerable time for their proper execution, and sixty-seven wood cuts. It was, nevertheless, published only one week later than the present committee, with all their efforts, were able to issue the volume of Transactions committed to their charge.

The contents of the volume are clumsily arranged. The index to the valuable paper of Dr. Porcher is inserted altogether out of place, being at the very end of the volume, after the general index of the latter. Various other inaccuracies might be pointed out. Thus, the prize essay of Dr. Brainard is accredited on both its titles to Dr. David Brainard, whereas it is the production of Dr. Daniel Brainard. The list of permanent members is replete with errors, some of them altogether inexcusable; while the very important resolution of Dr. Atlee, adopted at the last session of the Association, requiring the Constitution with its several amendments to be printed with each volume of the Transactions, has been either overlooked or entirely disregarded by the committee.

We are perfectly willing to make allowance for many of the defects in the execution of the volume before us. The task of editing and publishing a work similar to these Transactions is certainly a difficult and laborious one, and when committed to those who have neither sufficient experience or leisure for its proper execution, cannot fail to be more or less imperfectly performed. We should have been among the last to notice the short-comings of the present Committee of Publication, had not the unwise and fulsome commendations of their friends, and the disparaging remarks bestowed by them upon the preceding committee, in order to magnify the labors of the former, seemed to render an examination of their pretensions necessary and proper.

A Manual of Pathological Anatomy. By C. Handfield Jones, M.B., F.R.S., &c.; and Edward H. Sieveking, M.D., &c. *First American Edition, revised. With three hundred and ninety seven illustrations.* Philadelphia: Blanchard & Lea. 1854.

We cordially welcome the above manual as a most valuable addition to the literature of the subject of which it treats. "The absence of any original work in the English language which embraces the whole subject" of pathological anatomy—the apology offered by the authors for its composition—greatly enhances our obligations for its acquisition. The necessity of an intimate acquaintance with the various morbid processes which affect the human organism need not, here, be spoken of. A just appreciation of these and of the effects produced by them should be considered indispensable to the practitioner both of surgery and medicine. The possession and application of such knowledge constitute, in fact, one of the essential differences between the accomplished physician, and him whose guidance is, at best, but mere conjecture.

The first part of the work, nearly one third of the whole book, is devoted to the subject of General Pathological Anatomy. Under this head, after some excellent preliminary observations, are described: Functional Derangement; Morbid States of the Blood; Textural Changes; New Formations—Tumors; and the Parasites existing in the Human Organization. The Pathological Anatomy of the Nervous System; of the Organs of Circulation; of the Organs of Respiration; of the Alimentary Canal; of the Urinary Apparatus; of the Female Organs of Generation; of the Joints; and, finally, of the Osseous System are then successively treated of.

Dr. Jones' observations regarding the immunity afforded by certain affections against tuberculous disease are both striking and instructive.

"Cystic growths are not often associated with tubercle, and the same is true of cancerous; when the latter are present together with tubercle, they are, in most cases, of secondary origin to it. Rokitansky contrasts the frequency of tuberculization of the lungs with the rarity of pulmonary cancer; the frequency of ovarian, gastric, and rectal cancer, with the rarity of tuberculous deposit in these parts. These and other facts indicate that the one morbid process tends to exclude the other. Typhus

and the exanthemata, he states, do not commonly attack the tuberculous, but they are very apt to be followed by tuberculous disease. Sufferers from intermittent fever, goîtrous disease, and rachitis, seem to be, *pro tanto*, less liable to tuberculous affection. The non-coexistence of aneurismal and tuberculous disease depends, in Rokitansky's opinion, on the exhaustion of the fibrinous constituent of the blood, by the deposits taking place on the inner surface of the sac. An especial immunity against tubercle is afforded by an abnormally venous condition of the blood, from whatever cause this may come to pass. Congenital malformations of the heart or great blood vessels; morbid alterations of the same; deformities of the chest, producing contraction of its cavity; annihilation of the function of one lung by pleuritic effusion; abdominal growths, preventing the free descent of the diaphragm; chronic pulmonary catarrh; emphysema and bronchial dilatation, have all been observed as exercising an unquestionable counter influence against the development of tubercle; and in all these conditions the free oxygenation of the blood is more or less interfered with. The undoubted effect of pregnancy in delaying the advance of tuberculous disease of the lungs, is explained by Rokitansky on the same principle of impeded, and consequently imperfect respiration, inducing a venous condition of blood; and he refers to the great production of fibrin, which takes place after parturition, as confirmatory of this view—tubercle being regarded as a fibriniform product."

As relating to the same subject, we would, here, draw attention to the following statement, (page 424:)

"A species of antithesis exists in the lungs between the tendency to tubercular deposit in their apices and the liability of the lower lobes to idiopathic inflammation. This may be accounted for by the encouragement to deposition from the blood offered in the apices of the lungs, by the lesser expansibility of these parts. The movement of the clavicle and two upper ribs is very small compared with that of the lower ribs, and the intercostal muscles are more rigid here than below, circumstances that are enhanced by a sluggish habit, while they favor any accidental impediment to the aeration of the blood. This, in its turn, diminisnes the rapidity of the current as well as its quality; hence the morbid deposition ensues, and, as the cavities of the air-vesicles are the points of least resistance, the effusion is effected into them. We have already mentioned that the more rapid the course of phthisis, the more generally we find the deposit diffused through the lung. In a case of acute miliary tubercle, from which one of our illustrations is taken, the bases and the apices of both lungs were uniformly affected; both organs being studded throughout with the deposit, which had probably taken place but a few days previous to death, in a subject debilitated by rheumatic affection of the heart and central softening of the brain."

The conflicting views which are held regarding the value of the microscope as a positive means of distinguishing cancerous from other tumors, as well as the widely different opinions respecting

their curability by operation or otherwise, are strongly evidenced in the discussion now going on before the Parisian Academy of Medicine. It will be seen by the following extract that Dr. Jones agrees with M. Velpeau in his very moderate estimate of the microscope as a means of diagnosis of such structures. After mentioning the different forms of cancer generally met with, Dr. Jones remarks:

"There may be, probably, other varieties of cancerous tumors, or, to put it otherwise, tumors possessing more or less of cancerousness; but we have now sketched the outline of the principal forms that are usually met with, and we feel convinced that it is far more important for the student and the practitioner, to contemplate steadily the great characteristics of cancerous disease, than to load his memory with the details of the incidental and trivial. Partly on this account we have not attempted to give any very minute description of the structure of cancerous tumors, for our own examinations have most thoroughly convinced us of the non-existence of any special structural character, absolutely and in all cases distinctive of cancer. This point, which is in accordance with the teachings of the best authorities, seems far from being correctly understood in the present day, and we cannot but think that there is still much tendency to over-estimate the microscope as a means for the diagnosis of cancer. It is our opinion that the cases are very rare indeed, where the microscope will avail to detect cancer with any certainty, where the naked eye features are insufficient. On the other hand, we have more than once seen unquestionable cancers made up of substance which we should have been led, from microscopic examination alone, to consider as of a simple nature."

The opinion of the same writer upon the curability of cancer by operation, though guarded, is, on the whole, unfavorable to such a proceeding, excepting as regards the epithelial varieties of the disease. He says:

"In concluding this subject, we may offer a few remarks with reference to the effects of removing cancerous tumors by operation. In the first place, it is quite clear that the disease is manifestly constitutional, and that no sound, real cure can be expected from merely removing its external development. Secondly, it is matter of experience, that in not a few instances surgical interference with one tumor has provoked the speedy appearance of several others. Thirdly, any attempt at removal is useless; nay, may be absolutely injurious, unless every particle of cancerous structure is taken away. Fourthly, epithelial cancers seem least prone to return after removal; encephaloid invariably does, and mostly with great rapidity; scirrhus may be checked in its progress, but its return can very rarely be prevented. The check which may be given by operation to the progress of cancer depends on the circumstance before stated, that a tumor, once formed, becomes an instrument for the multiplication of similar tumors and intensification of the diathesis. It

must require a combination of favorable circumstances, or a great intensity of the diathesis, to insure the development of effused blastema into an heterologous growth; but when this has taken place, then the very growth and vital actions of the structure will constantly generate fresh supplies of cancerous blastema, and thus promote the formation of secondary cancers. The destruction, therefore, of the growth, which thus reacts so evily upon the system, may be reasonably expected, *if it do not aggravate,* to delay the cause of the disease. But the misfortune is, that, as above stated, it does sometimes aggravate, and that fearfully, a previously indolent cancerous diathesis. Dr. Walshe says, 'excision of a tumor seems to awaken a dormant force, cancers spring up in all directions, and enlarge with a power of vegetation almost incredible.' Why this should happen, we do not know; but we may conjecture that when the original diathesis is slight, the formation of a tumor may tend in some degree to localize it, and leave the system in a somewhat healthier state, provided the tumor itself be chiefly fibrous, and produce but a small amount of blastema. The removal of the indolent tumor may be analogous to the cure of fistula in ano in a person of phthisical tendency. The two principles referred to of the cancerous tumor, in one case acting as a cause, increasing the force of the disease, and in another retarding it, are not contradictory, though opposite; they will prevail in different degrees in different instances, according to the kind of tumor and other circumstances."

Our limited space alone restrains us from noticing more at length the various subjects treated of in this interesting work. Presenting, as it does, an excellent summary of the existing state of knowledge in relation to pathological Anatomy, we cannot too strongly urge upon the student the necessity of a thorough acquaintance with its contents.

Address delivered before the Philadelphia County Medical Society. By THOS. F. BETTON, M.D., M.A.N.S., President of the Society, Fellow of the College of Physicians of Philadelphia. Dec. 13th, 1854. Published by the Society.

It is perhaps not altogether becoming in the members of a society, albeit behind the reviewer's shield, to trumpet the praises of their own President's official production. We do not propose, therefore, to alarm his modesty, or any body's sense of propriety, by needless though natural gratulations on the very happy and elevated, as well as practically useful manner and matter of Dr. Betton's address. Still, simple truth requires us to say that we have fairly read it through, as we had previously listened to it, with unusual interest and pleasure, and a considerable degree of pride. Those who have enjoyed the same privilege must agree to the just-

ness of this estimate, and we entertain no fear of a different result with others who may have the benefit of its perusal yet in store for them.

All will admit that the sentiments are those of a genuine lover of his calling, and of one who has the best and only true interests of his brethren at heart; and we are not ashamed to acknowledge full allegiance to the spirit of such an emanation from the highest seat of our professional synagogue. Any enumeration, however, of the reasons for the favorable impression here expressed, would only lead to an undesirable transgression of the rule of conduct under which we have just set out. Several questions are touched upon in such a way as strongly to incline us to occupy, in extracts, an amount of space which is already otherwise absorbed; others again are suggested which, in these days of agitation and progress, it is hard to avoid discussing. Such passages, for instance, as the following, and more of similar import:

"How, then, shall we begin to restore the palmy days of our profession, and see them shine with the same refulgence that illuminated them in the days of Rush, Shippen, Wistar, Physick, and a host of other departed worthies? How shall we exterminate quackery and all its attendant evils? Not by opposition, nor by ridicule, nor by satire, nor even by legislative enactments, were it possible to obtain them—for, like the rebel weed, it grows most luxuriantly when most trampled upon—but by elevating the tone and standard of ourselves, and of those who are to succeed us. Let us actively set about and demand a radical improvement in the course of medical instruction in this country; not by extending the term of lectures, nor by increasing the number of subjects now taught, but by exacting a more thorough preliminary education of those who enter the portals of our medical schools. Any one who mixes much among his medical brethren must be pained to find the lamentable ignorance displayed, by many, of all the branches of polite learning, so necessary to form the character of a physician and a gentleman. Let it be required of all who present themselves as pupils, to possess, at least, a correct knowledge of their own language, and such attainments in the classics as to enable them to construe the easier authors; or, at all events, to write correctly the common apothecary Latin of the day."

Our chief object in the present notice is to invite particular attention to one of the most important topics treated by the orator. It is a topic, too, which possesses a virtue decidedly rare in these annual demonstrations—novelty. We refer to the management of what are mis-called the College Clinics. Dr. Betton's remarks upon the evils of the system now in vogue among the schools, are so entirely in accordance with the views

maintained in the January number of this Journal, and sustain them so directly, that we cannot deny ourselves the satisfaction of quoting them at length.

"The plan of clinical teaching in our medical schools, specious as it may at first sight appear, and attractive, as it certainly is, to the newly initiated student, anxious to witness, for the first time, the shedding of human blood, or wonder at the coolness and dexterity of the surgeon, is, at best, but little better than an advertisement. It does not teach operative surgery, for that can be learned practically only in the dissecting-room on the subject. It diverts clinical teaching from its proper channel of hospitals, almshouses and infirmaries, and is a direct injury to the profession at large, more especially to the junior members of it, by monopolizing practice which would otherwise fall under their hands. Who would not, very naturally and wisely, prefer submitting to a surgical operation at the hands of distinguished professors, eminent for their experience and skill, rather than to be subjected to the knife of a tyro, no matter what may be his talents and qualifications: particularly when all these advantages are accompanied by the magical inducement, that the relief is afforded *gratuitously*. It is underselling others, since many resort to the public clinics, who would willingly and readily afford some compensation, thereby taking this from the pocket of some deserving and aspiring young man, to whom, in all probability, it would have been of importance; and depriving him, moreover, of the opportunity of gaining that skill and experience which would give him high rank in his profession. In bygone days students never received any public clinical instruction in the amphitheatre of the schools; yet, were it allowable, we could point out as many physicians as learned, and surgeons as dexterous, as any who have graduated under the modern and so-called improved system. That it attracts pupils, and increases the size of the class, I believe there can be no doubt; this, perhaps, is all that is required. That it fails to instruct the pupil in an adequate degree, and that it is unjust to the profession generally, I believe there can be equally none."

We felt satisfied that the Examiner, in commenting on the evils and abuses of the so-called clinical demonstrations at our medical schools, was only giving active expression to a deeply felt conviction of the mass of our associates in practice, and of not a few even of the teachers of medicine. We knew that its language was but a faint echo of the long burthened and too long unuttered thoughts of the great majority of those around us, whose opinions, in such questions, in order to be conclusive in their operation, need only to be followed by decisive and united action. It was, nevertheless, a consummation far beyond our hopes to meet, at the very first step, with the frank and vigorous support of one whose position, at the head of those who are most

aggrieved, because most extensively subjected to the wrong, gives peculiar significance and weight to his official warning.

We sincerely trust that the members of the body to whom that warning was addressed will not let it pass without appropriate response and a corresponding effort in the right direction. They have the power, and sooner or later they will be forced in self-defence to exercise it. They have been sleeping in a blissful ignorance, while a paralysing incubus was daily growing in their midst. They have discovered, just in time, that an overgrown monopoly in the guise of charitable science was threatening, under shelter of its delusive pretensions and advantages, to darken, if not destroy, their prospects of advancement.

Let us not be understood, in complaining of one portion of the prevailing system of practical instruction, to be approving of another portion, which, as at present frequently administered, may be scarcely less faulty and insufficient. Nor could we pretend, in agreeing with the proposition to double the established number of clinical lessons at the hospital, to do more than advocate it as the least possible step towards reform, and simply because that step is not only immediately practicable, but immediately demanded by the crying necessities of all concerned.

Until a better state of things is obtained in this country, we would be glad to see an entire separation between the elementary and didactic exercises of the lecture room and the practical exhibitions of disease, its results and its management at the bed-side. There is quite enough to do in both branches of teaching to afford abundance of legitimate work, during the customary term of study, to two distinct corps of preceptors. Whether the European example be followed in this respect or not, it is very certain that the attempt to convert a class-room into a sick-ward, an operating theatre, or even into a consulting dispensary, during two hours of two days in the week, cannot fail to produce a mongrel institution, which, as a whole, meets few of the real wants of the occasion, while it does endless injury by substituting a mockery and sham for a substantial good to the student on the one hand and the patient on the other.

We may return to the hospital curriculum at some future period. Our business now is with a far more potent evil. We have to deal, not with the bonâ fide clinical instruction imperatively needed by the student to prepare him for his destined work in

life, but with its miserable counterfeit presented in a system which, producing a hotch-potch of the worst features of the hospital and the dispensary together, succeeds in imitating neither well enough to reconcile us with the absence of the other.

The important question is, how far does the objectionable system fail in meeting the acknowledged requirements of the learner?

We have no wish to under-rate the legitimate uses of a dispensary. The prescribing room of such a charity or the out-patients ward of a hospital, certainly afford an excellent field for a valuable amount and kind of practical training. But the student must diligently delve in it with his own hands; he must follow a competent adviser step by step in the greatest possible number and variety of cases; and, although at length familiarized with, but still studying, the walking specimens of human suffering, he must look within the hospital and watch long and earnestly among the fractures, the serious wounds, the fevers, the multiform disorders and stages of disease that occupy the beds, before he begins to think his student work accomplished.

The solid advantages obtainable from a Dispensary for the practical investigation of slight, incipient and other forms of portable disease and injury are unquestionably great, although we do not agree that such classes of medical and surgical disorder constitute a materially large proportion of the young practitioner's every day experience. In the amphitheatrical "clinic," however, the custom of presenting showy operations and attractive lectures, during the two hours a week devoted to each branch of practice, effectually does away with the main and sole recommendation to the out-patient plan, as a means of practical improvement.

Out of the whole number presenting themselves for professional treatment, a small fraction only can be exhibited, or dressed or operated on before the class; and these few are to be gazed at from a distance, if not through an ever waving mass of bushy heads and jutting shoulders. What becomes of the remainder, and who see and prescribe and otherwise attend to them, it is not for us to say. They doubtless enjoy the usual share of tender mercies for such cases made and provided, and undoubtedly may claim the honor of facilitating the practical improvement of the few enterprising votaries of science who find their way behind the scenes. But the majority of the lookers on in the class

room know and learn nothing from the crowd of cases that are hastened through by the professor or his clinical assistant, during the brief time allowed for consultation and advice.

Unfortunately, again, we meet a stumbling block which might be easily forgotten by every one except the really practical inquirer. Who is to insure a second visit from the patient whose interesting ailment has been once provided for? And who is to guarantee that he will adhere to any one of the directions with which he has been formally dismissed in the hearing of the class? It is unnecessary to pursue this subject further. We need no ghost from the grave to tell us how to estimate the scientific value of the absurd performances which are thus dignified with the title and importance of lessons in the healing art. But the great boast—the leading card of these displays is their surgery—their splendid operations!

Here, at least, is no mistake, and something tangible! It is visible sometimes, and audible, but rarely tangible. Even in the vision must the faith be constantly in service. The vaunted operation, the crepitating bone, the projecting dislocation, the fluctuating abscess, the impermeable stricture, may each be brilliantly portrayed to the willing ear, and trustingly believed in; but he is a happy man indeed whose admission to the sanctum sanctorum of the arena has enabled him to touch or even see distinctly what is so fluently described; so, too, in many operations, the excited student must very often be content with faith, as the only evidence of the things not seen. Such and many similar difficulties, are, in short, inseparable from the plan adopted. They have been briefly hinted at without the remotest intention to reflect upon the truthfulness of the honorable and able teachers who are involved in these unsatisfactory and delusive exhibitions. Some of these objections, of course hold good against the hospital as well as the dispensary, especially so far as the demonstrations of the theatre are concerned. The worst of the dispensary is, that there is no help for such defects so long as the functions of a hospital are assumed, and the true and only province of the out-ward is abandoned or exceeded.

We have nearly exhausted our allotted space, but have barely entered on our subject. Occasions will not be wanting for a return to it again. We may then have something to say, amongst other matter, in relation to the moral effects of the sys-

tem of gratuitous advice so shamefully abused in these clinics. This view of the question affords ample material for a chapter without allusion to other considerations. It has been for some time past, the sole burthen of numerous leaders and a multitude of letters in the British periodicals, under the impulse of an agitation in the mother country, which we earnestly hope will be attended with permanently good results,—results that may save us in America from the same kind of quicksands, towards which the members of the profession in this and other countries have been good naturedly and most blindly drifting. Let us once clearly open our eyes to the tendency of our own supineness, and nothing will be easier than to avert the threatened danger.

MEDICAL NEWS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.—At a Meeting, held January 17th, 1855, the following Officers and Delegates were elected for the present year, viz:

President—D. Francis Condie.

Vice Presidents—Wilson Jewell and Francis West.

Recording Secretary—Robert P. Thomas.

Assistant Secretary—J. Aitken Meigs.

Corresponding Secretary—Isaac Remington.

Treasurer.—Wm. Byrd Page.

Censors.—John B. Biddle, Anthony E. Stocker, Lewis Rodman, Wm. N. Johnson and Samuel Lewis.

Delegates to the American Medical Association—John Bell, Thomas F. Betton, D. Francis Condie, John Conrey, Samuel L. Hollingsworth, Samuel Jackson (Spruce street), Benjamin S. Janney, Wilson Jewell, William H. Klapp, D. Paul Lajus, John F. Lamb, R. La Roche, Samuel Lewis, Arnold Naudain, Wm. Byrd Page, Lewis Rodman, Anthony E. Stocker, Robert P. Thomas, Ellwood Wilson, Caspar Wister, Thomas H. Yardley and Jacob S. Zorns.

Delegates to the State Medical Society—T. Hewson Bache, John B. Biddle, Thomas F. Betton, Joseph Carson, Benjamin H. Coates, D. Francis Condie, John Conrey, G. Emerson, James V. Emlen, David Gilbert, Robert A. Given, Edward Hartshorne, Isaac Hays, Adinell Hewson, Samuel L. Hollingsworth, Nathan L. Hatfield, Alexander C. Hart, Abram Helffenstein, John H. Ingham, Samuel Jackson (Spruce street), Benjamin S. Janney, Wilson Jewell, Alfred L Kennedy, Wm. H. Klapp, R. La Roche, Samuel Lewis, John F. Lamb, John H. B. McClellan, John K. Mitchell, S. Weir Mitchell, William Mayburry, John Neill, Arnold Naudain, Joseph Pancoast, John M. Pugh, Alfred Stillé, Francis G. Smith, Robert P. Thomas, Francis West, Ellwood Wilson, Caspar Wister, George B. Wood, Thos. H. Yardley and Jacob S. Zorns.

From the Minutes,

ROBERT B. THOMAS, Recording Secretary.

At the Annual Meeting of the Northern Medical Association, held Jan. 12, 1855, the following Officers were elected for the ensuing year.

President—Dr. M. B. Smith.

Vice President—Dr. John Rhein.

Treasurer—Dr. J. Henry Smaltz.

Recording Secretary—Dr. Levi Curtis.

Reporting Secretaries—Drs. Joseph R. Bryan and Charles Wittig.

Corresponding Secretary—Dr. William Mayburry.

Counsellors—Drs. R. H. Townsend, N. L. Hatfield, R. J. Levis, George J. Zeigler and John Uhler.

Delegates to the American Medical Association—Drs. N. L. Hatfield, R. H. Townsend, J. Henry Smaltz, John Rhein and L. Curtis.

Selective Committee—Drs. George J. Zeigler, R. J. Levis, J. Henry Smaltz, Joseph R. Bryan and L. Curtis.

LEVI CURTIS, Recording Secretary.

ERRATUM.—In Dr. H. H. Smith's article on "Gastrotomy," in our last Number, the word *lump-like*, on page 4, should read *lymph-like*.

Abstract of Meteorological Observations for December, 1854, *made at Philadelphia, Pa. Latitude* 39° 57′ 28″ *N., Longitude* 75° 10′ 40″ *W. from Greenwich.* By PROF. JAMES A. KIRKPATRICK.

1854. Dec.	Barometer. Daily Mean	Barometer. Mean Daily Range.	Thermom. Daily Mean	Thermom. Mean Daily Range	Dew Point 2 P. M.	Rel. Humid. 2 P. M.	Rain and melted Snow.	Prevailing Winds.	Remarks.
	Inches.	Inches.	Deg.	Deg.	Deg.	Hunds.	Inch.	Point's.	
1	29.885	.104	31.7	7.0	26.0	0.71		(Var.)	M. clear; aft. and ev. cloudy.
2	29.910	.083	34.5	4.2	25.8	.53		(Var.)	M. cloudy; aft. and ev. clear.
3	29.426	.484	35.7	2.5	41.0	1.00	0.629	N.	Cloudy. *Rain* all day, ev. *Snow. Bar. lowest* 29.244.
4	29.344	.247	27.5	8.2	20.0	.66		NW.	M. and aft. cloudy; ev. clear.
5	29.521	.143	24.3	3.2	20.0	.66		W.NW.	Cloudy.
6	29.569	.104	30.0	5.7	30.7	.88		SW.	Cloudy.
7	29.514	.134	30.3	7.0	23.3	.52		W.	M. and aft. cloudy; ev. clear.
8	30.025	.511	22.0	8.7	15.7	.50		NW.	Clear.
9	30.380	.355	25.7	5.0	23.0	.69		SW.	Clear.
10	30.165	.215	36.7	11.0	32.7	.66		SW.	M. clear; aft. and ev. cloudy. Rain during the night.
11	29.963	.202	36.3	6.3	30.7	.65	0.696	NW.	M. and aft. cloudy; ev. clear.
12	30.027	.064	31.5	4.8	28.3	.79		NW.	M. and aft. cloudy; ev. clear.
13	29.921	.111	36.0	5.8	30.3	.73		SW.	M. & aft. cl'y; ev. cl'r. *Th. hi'est* 48°.
14	29.855	.065	40.0	4.7	38.7	.70		SW.	M. and aft. cloudy; ev. clear.
15	29.719	.137	39.0	4.3	36.0	.75		NE.	M. clear; aft. and ev. cloudy.
16	29.650	.191	41.0	2.0	35.7	.68		NW.	Cloudy.
17	29.849	.198	32.3	8.7	25.0	.70		NE.	Cloudy.
18	29.848	.058	27.3	2.3	23.3	.77	0.020	N.NW.	M. *Snow*, aft. cloudy; ev. clear.
19	29.946	.098	17.3	10.0	14.0	.59		N.	Clear.
20	29.935	.015	14.3	4.3	12.0	.57		W.	Clear. *Therm. lowest* 6°.
21	29.871	.064	29.3	15.0	28.3	.79	0.052	(Var.)	M. *Snow*: cloudy.
22	30.174	.303	30.8	6.5	27.7	.62		(Var.)	Cloudy.
23	30.477	.304	20.5	10.7	20.0	.80	0.149	NE.	Cl'y; ev. rain. *Bar. highest* 30.504.
24	30.154	.323	34.3	13.8	33.7	.89	0.178	SW.	M. rain, cloudy; ev. *fog*.
25	30.034	.120	35.3	1.7	36.7	.90		SW.	M. and aft. cloudy; ev. clear.
26	29.939	.094	38.5	3.2	40.0	.88	1.354	NE.	Cloudy; m. fog; aft. & night rain.
27	29.794	.146	44.3	5.8	44.7	.92		N.	Cloudy.
28	29.794	.067	40.2	4.2	37.7	.90	0.116	NE.	Cloudy; ev. fog; aft. and night rain
29	29.750	.131	31.3	8.8	24.0	.69	0.116	NW.	M. *Rain* till 8, *Snow* till 12.
30	29.936	.190	22.0	9.3	15.7	.50		NW.	Clear.
31	30.063	.127	29.3	7.3	26.0	.71		NW.	Clear.
Means for Dec. 1854	29.885	.174	31.3	6.5	28.0	.74	3.185	N. 51° W., 63–100.	
3yrs	29.911		35.2		31.7		3.510	N. 47½° W. 51–100.	

Monthly Range of Barometer 1.260, and of the Thermometer 42°.

Abstract of Meteorological Observations made at Philadelphia, Pa., Latitude 39° 57′ 28″ *N., Longitude* 75° 10′ 40″ *from Greenwich, for the year* 1854. By PROF. JAMES A. KIRKPATRICK.

1854.	Barometer, reduced to 32° F.				Thermometer.				Dew Point, 2 P.M.				Rain & Melted Snow.	Winds. Monthly Resultant.	Remarks.
	Mean	Highest	Lowest	Range	M.	H.	L.	R.	M.	H.	L.	R.			
	Inch.	Inches.	Inches.	Inches.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Inches.	No. of times in 1000.	
January	30.008	30.471	29.384	1.087	30.42	58	11½	46½	31.82	58.0	21.0	37.0	2.320	N. 88° W. .559	The warmest day was July
February	29.957	30.404	29.432	.972	33.42	61	16	45	33.01	55.3	24.7	30.6	4.200	N. 71° W. .461	21st, mean temperature,
March	29.842	30.260	29.158	1.102	42.22	75	22	53	34.63	57.7	17.0	40.7	1.625	N. 53° W. .543	91.3°.
April	29.872	30.518	29.249	1.269	50.08	85	28	57	39.29	52.0	23.7	28.3	8.145	West .378	Thermometer highest July
May	29.847	30.153	29.585	.568	64.25	84	35	49	19.09	69.0	26.7	42.3	7.299	S. 85° W. .140	21st, 100½°, 3½ P. M.
June	29.824	30.098	29.519	.549	71.63	96	49	47	54.82	72.7	37.7	35.0	3.441	S. 76° W. .517	Coldest day, December 20,
July	29.926	30.118	29.711	.407	79.11	100½	63	37½	59.22	72.6	47.7	24.3	3.837	N. 71° W. .410	mean temperature 14.3°.
August	29.946	30.185	29.701	.484	75.49	95	56	39	56.70	71.0	45.7	25.3	0.918	N. 81° W. .212	Thermometer lowest Dec.
September	30.020	30.388	29.657	.731	70.02	94	47	47	56.54	69.7	36.0	33.7	4.883	West .178	20th, 6°.
October	29.994	30.330	29.431	.891	59.15	79	34	45	47.19	67.7	29.3	38.4	1 918	N. 70° W. .320	Barometer highest, 30.518,
November	29.831	30.369	29.257	1.112	46 13	69	27	42	37.41	62.7	24.3	38.4	3.460	S. 85° W. .614	on the 3d of April.
December	29.885	30.504	29.244	1.260	31.26	48	6	42	27 96	44.7	12 0	32.7	3.185	N. 51° W. .629	
Annual means	29.913	30.518	29.158	1.360	51.43	100½	6	94½	43.98	72.7	12.0	60.7	15.23	N. 77° W. .378	Barometer lowest, 29.158,
															on the 17th of March.
Winter	29.945	30.471	29.115	1.356	32.55	61	11	50	31.56	58.0	16.0	42.0	10.680	N. 64° W. .496	
Spring	29.854	30.518	29.158	1.360	52.18	85	22	63	41.00	69.0	17.0	52.0	17.069	N. 72° W. .356	
Summer	29.899	30.185	29.549	.636	75.41	100½	49	51½	56.91	72.7	37.7	35.0	8.196	S. 87° W. .268	
Autumn	29.948	30.388	29.257	1.131	58.43	94	27	67	47.05	69.7	24.3	45.4	10.261	N. 82° W. .367	
For 3 years	29.920	30.709	28.895	1.804	51.04	100½	-3	103½	43.47	75.0	12.0	63.0	14.80	N. 74° W. .369	